



CITY OF SANTA BARBARA

ORDINANCE COMMITTEE AGENDA REPORT

AGENDA DATE: April 21, 2009

TO: Ordinance Committee

FROM: Administration Division, Parks and Recreation Department

SUBJECT: Tree Preservation Policy Recommendations

RECOMMENDATION:

That the Ordinance Committee consider proposed amendments to Municipal Code Chapters 15.20 and 15.24 pertaining to tree preservation and forward the ordinance amendments to the City Council for introduction and adoption.

EXECUTIVE SUMMARY:

On December 9, 2008, the City Council referred proposed revisions to the City's Tree Preservation policies and enforcement procedures to the Ordinance Committee for further consideration. The City Council also requested recommendations from the Street Tree Advisory Committee (STAC) and the Park and Recreation Commission regarding the use of American National Standards Institute (ANSI) A300 Pruning Standards and Best Management Practices (BMPs) in the City's regulation of trees. At its regular meeting on March 5, 2009, the STAC considered whether the ANSI A300 Pruning Standards are appropriate for use as the City's standard for enforcement, the benefits to the urban forest of strengthening the City's enforcement standard, and the challenges of determining violations if the amount of foliage is the measure. In addition to concurring with other amendments proposed by staff, the STAC recommended additional amendments, including: 1) define a substantial alteration as a reduction of the height and/or spread of the tree crown by more than $\frac{1}{4}$ in a 12-month period, 2) require that work by permit on City-owned trees is in conformance with the ANSI A300 Pruning Standards and BMPs, and 3) add a new section in Chapter 15.24 referencing the ANSI A300 Pruning Standards and BMPs and encouraging their use. At its regular meeting on March 25, 2009, the Park and Recreation Commission considered and concurred with the proposed amendments, including the STAC recommendations.

DISCUSSION:

On December 9, 2008, the City Council received a presentation on the Tree Preservation and Landscape Plan Maintenance Policies and Enforcement Procedures Review and referred the proposed revisions to the Municipal Code to the Ordinance Committee for further consideration. The City Council also requested that staff seek recommendations from the STAC and the Park and Recreation Commission regarding the use of ANSI A300 Pruning Standards and BMPs in the City's regulation of trees.

This staff report briefly discusses the ANSI A300 Pruning Standards and BMPs (included as Attachment 1), outlines the recommendations of the STAC and the Park and Recreation Commission regarding the use of the ANSI A300 Pruning Standards and BMPs, and presents the proposed amendments to Municipal Code Chapters 15.20 and 15.24 (included as Attachment 2). The report also reviews the proposed fine schedule, and proposed education and outreach efforts to increase public knowledge and understanding of City tree preservation rules. The Community Development Department will provide the Ordinance Committee with the landscape maintenance policy recommendations at a later date.

ANSI A300 Pruning Standards and BMPs

ANSI publishes standards for use in many different industries. The ANSI A300 Pruning Standards for tree care operations are intended for use as guidelines for federal, state, municipal, and private authorities including property owners, property managers, and utilities in drafting maintenance specifications. The ANSI A300 Pruning Standards includes definitions of pruning techniques as well as pruning tools, tree structure, and tree professional categories. The Parks and Recreation Department currently uses these standards when preparing contract specifications for tree pruning work, or as mitigation measures when appropriate for tree trimming violations. Forestry staff also uses these standards as a guideline for City tree pruning practices.

The BMPs document is published to help interpret and implement the ANSI A300 Pruning Standards. The BMPs document defines several types of pruning techniques and describes where to make cuts related to the anatomical structure of the tree. The purpose of the BMPs document is to establish a common description of preferred pruning styles and methods.

STAC Discussion and Recommendations

At its regular meeting on March 5, 2009, the STAC reviewed and discussed the ANSI A300 Pruning Standards and BMPs as potential tools for the enforcement of the City's regulations related to private trees. Included as Attachment 3, the STAC staff report outlines the key issues for discussion.

Chapter 15.24, Preservation of Trees, regulates the management and removal of trees on private property located in the front setback or, where required, in parking lots. As currently written, section 15.24.020 of Chapter 15.24 prohibits the cutting down or otherwise destroying a tree without a permit. The term “cut down or otherwise destroy” is defined as cutting a tree down or pruning a tree in such a way that its natural character is significantly altered or its overall size is reduced by more than $\frac{1}{3}$. This definition establishes violations and defines the scope of pruning that is allowed without a permit. By contrast, one of the provisions of the ANSI A300 Pruning Standard recommends that no more than $\frac{1}{4}$ of a tree’s foliage be removed within an annual growing cycle.

Staff has proposed revisions to Chapter 15.24 that include the replacement of the term “cut down or otherwise destroy” with the term “remove or significantly alter”. As proposed by staff, a significant alteration was defined as either a significant alteration of the tree’s natural character or the reduction of the height and/or spread of the tree crown by more than $\frac{1}{3}$ in a 12-month period.

The STAC considered the following topics regarding the City’s ordinance:

1. Should the ANSI A300 Pruning Standards and BMPs be incorporated by reference as the City’s tree preservation enforcement standard?
2. Should the City standard allow a reduction of up to $\frac{1}{3}$ without a permit or should the limit be set at a reduction of no more than $\frac{1}{4}$?
3. Should the City’s ordinance be based on the size of the tree crown or the amount of foliage removed?

The STAC considered whether the ANSI A300 Pruning Standards are appropriate for use as the City’s standard for enforcement, the benefits to the urban forest of strengthening the City’s enforcement standard, and the challenges of determining violations if the amount of foliage is the measure. There was also discussion regarding how the ANSI A300 Pruning Standards and BMPs could be referenced in Chapters 15.20 and 15.24 even if they were not adopted as the enforcement standard. In addition to concurring with other amendments proposed by staff, the STAC made the following specific recommendations:

1. Amend Municipal Code 15.24.010.G to define a substantial alteration as a reduction of the height and/or spread of the tree crown by more than $\frac{1}{4}$ in a 12-month period.
2. Amend Section 15.20.130 to require that work by permit on City-owned trees is in conformance with the ANSI A300 Pruning Standards and BMPs.

3. Add a new section to Chapter 15.24 referencing the ANSI A300 Pruning Standards and BMPs and encouraging their use by the public in the maintenance of private trees.

Park and Recreation Commission Recommendations

At its regular meeting on March 25, 2009, the Park and Recreation Commission considered and concurred with the STAC recommendations and the other proposed amendments to Chapters 15.20 and 15.24.

Penalties for Tree Violations

As discussed with City Council on December 9, 2008, staff is recommending that the City establish significant penalties for tree violations. The current administrative fine of \$100 per tree violation is not an adequate deterrent. It is anticipated that higher fines, in addition to requiring corrective action (rehabilitation or replacement of trees that are affected), will achieve greater compliance. Staff developed and presented the proposed schedule to Council in December 2008.

Action without or in violation of a permit	Trunk diameter from 4" up to 12"	Trunk diameter over 12" and up to 24"	Trunk diameter over 24"
Pruning Offense	Up to \$500	Up to \$1,000	Up to \$1,000
Removal	Up to \$1,000	Up to \$3,000	Up to \$5,000

The proposed schedule establishes maximum fines and allows flexibility to differentiate between minor violations and more significant or repeated violations. The proposed fine schedule and corrective action requirements will be incorporated in a resolution for adoption by the City Council.

Other Proposed Amendments

In addition to the changes proposed for the enforcement of private setback and parking lot trees, the proposed amendments to Chapters 15.20 and 15.24 (as presented to City Council on December 9, 2008) include the following:

1. Formalization of the role of the Street Tree Advisory Committee in permitting procedures. (Sections 15.20.110 and 15.24.040)
2. Requiring compliance with the ANSI A300 Pruning Standards and BMPs as a requirement for permitted work on City trees by private individuals or companies. (Section 15.20.130.B)

3. Setting the height where trunk width is measured in a manner consistent with industry practice. (Section 15.24.030.A)
4. Clarifying which trees will be considered setback trees when only a portion of the trunk lies in the front setback. (Section 15.24.020)
5. Accommodating tree maintenance activities on private property when the work is being done pursuant to an order from the Fire Department to maintain defensible space or to comply with the City's Wildland Fire Plan. (Section 15.24.030.E)

Education and Information Programs

In addition to the proposed amendments to the City's tree preservation policies, Staff proposes to implement a voluntary education program and expand the City's website in order to educate property owners and industry professionals on the City's rules and regulations regarding tree preservation. The Parks and Recreation Department will provide training on the Municipal Code requirements once per year to landscape companies and tree care professionals. The City's web site will be expanded to include a specific page related to tree preservation policies and educational resources.

SUSTAINABILITY IMPACT:

Tree preservation and landscape plan maintenance policies are essential tools for the maintenance of a healthy urban forest and provide community aesthetic benefits. Updated policies will provide long-term protection for the City's urban forest which provides community energy conservation, water quality, air quality, and wildlife habitat benefits.

NOTE: Attachment 1 is available for public review online at <http://www.santabarbaraca.gov/CAP/> and in the City Clerk's Office.

- ATTACHMENTS:**
1. 2008 ANSI A300 Pruning Standards and BMPs
 2. Proposed Ordinance Revisions to Municipal Code Chapters 15.20 and 15.24
 3. Street Tree Advisory Committee Staff Report, March 5, 2009

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SUBMITTED BY: Nancy L. Rapp, Parks and Recreation Director

APPROVED BY: City Administrator's Office

American National Standard

ANSI A300 (Part 1)-2008 Pruning
Revision of ANSI A300 (Part 1)-2001

ATTACHMENT 1

*for Tree Care Operations —
Tree, Shrub, and Other Woody Plant
Management —
Standard Practices (Pruning)*



for Tree Care Operations —
Tree, Shrub, and Other Woody Plant Management —
Standard Practices (*Pruning*)

Secretariat
Tree Care Industry Association, Inc.

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American National Standard

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

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* The term pruning type is replaced with the term pruning method. The purpose of this is to label the processes detailed in section 6 with greater accuracy.

Foreword This foreword is not part of American National Standard A300 (Part 1)-2008 *Pruning*

ANSI A300 Standards are divided into multiple parts, each focusing on a specific aspect of woody plant management (e.g. Pruning, Fertilization, etc).

These standards are used to develop written specifications for work assignments. They are not intended to be used as specifications in and of themselves. Management objectives may differ considerably and therefore must be specifically defined by the user. Specifications are then written to meet the established objectives and must include measurable criteria.

ANSI A300 standards apply to professionals who provide for or supervise the management of trees, shrubs, and other woody landscape plants. Intended users include businesses, government agencies, property owners, property managers, and utilities. The standard does not apply to agriculture, horticultural production, or silviculture, except where explicitly noted otherwise.

This standard has been developed by the Tree Care Industry Association (TCIA), an ANSI-accredited Standards Developing Organization (SDO). TCIA is secretariat of the ANSI A300 standards, and develops standards using procedures accredited by the American National Standards Institute (ANSI).

Consensus for standards writing was developed by the Accredited Standards Committee on Tree, Shrub, and Other Woody Plant Management Operations – Standard Practices, A300 (ASC A300).

Prior to 1991, various industry associations and practitioners developed their own standards and recommendations for tree care practices. Recognizing the need for a standardized, scientific approach, green industry associations, government agencies and tree care companies agreed to develop consensus for an official American National Standard.

The result – ANSI A300 standards – unify and take authoritative precedence over all previously existing tree care industry standards. ANSI requires that approved standards be developed according to accepted principles, and that they be reviewed and, if necessary, revised every five years.

TCIA was accredited as a standards developing organization with ASC A300 as the consensus body on June 28, 1991. ASC A300 meets regularly to write new, and review and revise existing ANSI A300 standards. The committee includes industry representatives with broad knowledge and technical expertise from residential and commercial tree care, utility, municipal and federal sectors, landscape and nursery industries, and other interested organizations.

Suggestions for improvement of this standard should be forwarded to: A300 Secretary, c/o Tree Care Industry Association, Inc., 136 Harvey Road - Suite B101-B110, Londonderry, NH, 03053.

ANSI A300 (Part 1)-2008 Pruning was approved as an American National Standard by ANSI on May 1, 2008. ANSI approval does not require unanimous approval by ASC A300. The ASC A300 committee contained the following members at the time of ANSI approval:

Tim Johnson, Chair
(Artistic Arborist, Inc.)

Bob Rouse, Secretary
(Tree Care Industry Association, Inc.)

(Continued)

<i>Organizations Represented</i>	<i>Name of Representative</i>
American Nursery and Landscape Association	Warren Quinn
	Craig J. Regelbrugge (Alt.)
American Society of Consulting Arborists	Donald Zimar
American Society of Landscape Architects	Ron Leighton
Asplundh Tree Expert Company	Geoff Kempter
	Peter Fengler (Alt.)
Bartlett Tree Expert Company	Peter Becker
	Dr. Thomas Smiley (Alt.)
Davey Tree Expert Company	Joseph Tommasi
	R.J. Laverne (Alt.)
International Society of Arboriculture	Bruce Hagen
	Sharon Lilly (Alt.)
National Park Service	Robert DeFeo
	Dr. James Sherald (Alt.)
Professional Grounds Management Society	Thomas Shaner
Professional Land Care Network	Preston Leyshon
Society of Municipal Arborists	Gordon Mann
	Andy Hillman (Alt.)
Tree Care Industry Association	Dane Buell
	James McGuire (Alt.)
USDA Forest Service	Ed Macie
	Keith Cline (Alt.)
Utility Arborist Association	Matthew Simons
	Jeffrey Smith (Alt.)

Additional organizations and individuals:

American Forests (Observer)
Mike Galvin (Observer)
Peter Gerstenberger (Observer)
Dick Jones (Observer)
Myron Laible (Observer)
Beth Palys (Observer)
Richard Rathjens (Observer)
Richard Roux (NFPA-780 Liaison)

ASC A300 mission statement:

Mission: To develop consensus performance standards based on current research and sound practice for writing specifications to manage trees, shrubs, and other woody plants.

American National Standard for Tree Care Operations —

Tree, Shrub, and Other Woody Plant Management — Standard Practices (Pruning)

1 ANSI A300 standards

1.1 Scope

ANSI A300 standards present performance standards for the care and management of trees, shrubs, and other woody plants.

1.2 Purpose

ANSI A300 performance standards are intended for use by federal, state, municipal and private entities including arborists, property owners, property managers, and utilities for developing written specifications.

1.3 Application

ANSI A300 performance standards shall apply to any person or entity engaged in the management of trees, shrubs, or other woody plants.

2 Part 1 – Pruning standards

2.1 Purpose

The purpose of Part 1 – *Pruning* is to provide performance standards for developing written specifications for pruning.

2.2 Reasons for pruning

The reasons for tree pruning may include, but are not limited to, reducing risk, managing tree health and structure, improving aesthetics, or achieving other specific objectives. Pruning practices for agricultural, horticultural production, or silvicultural purposes are exempt from this standard unless this standard, or a portion thereof, is expressly referenced in standards for these other related areas.

2.3 Implementation

2.3.1 Specifications for pruning should be written and administered by an arborist.

2.3.1.1 Specifications should include location of tree(s), objectives, methods (types), and extent of pruning (location, percentage, part size, etc).

2.3.2 Pruning specifications shall be adhered to.

2.4 Safety

2.4.1 Pruning shall be implemented by an arborist, familiar with the practices and hazards of pruning and the equipment used in such operations.

2.4.2 This performance standard shall not take precedence over applicable industry safe work practices.

2.4.3 Performance shall comply with applicable Federal and State Occupational Safety and Health standards, ANSI Z133.1, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and other Federal Environmental Protection Agency (EPA) regulations, as well as state and local regulations.

3 Normative references

The following standards contain provisions, which, through reference in the text, constitute provisions of this American National Standard. All standards are subject to revision, and parties to agreements based on this American National Standard shall apply the most recent edition of the standards indicated below.

ANSI Z60.1, Nursery stock
ANSI Z133.1, Arboriculture – Safety requirements
29 CFR 1910, General industry ¹⁾
29 CFR 1910.268, Telecommunications ¹⁾
29 CFR 1910.269, Electric power generation, transmission, and distribution ¹⁾
29 CFR 1910.331 - 335, Electrical safety-related work practices ¹⁾

4 Definitions

4.1 **arboriculture:** The art, science, technology, and business of commercial, public, and utility tree care.

¹⁾ Available from U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210

4.2 arborist: An individual engaged in the profession of arboriculture who, through experience, education, and related training, possesses the competence to provide for or supervise the management of trees and other woody plants.

4.3 arborist trainee: An individual undergoing on-the-job training to obtain the experience and the competence required to provide for or supervise the management of trees and other woody plants. Such trainees shall be under the direct supervision of an arborist.

4.4 branch: A shoot or stem growing from a parent branch or stem (See Fig. 4.4).

4.4.1 codominant branches/codominant leaders: Branches or stems arising from a common junction, having nearly the same size diameter (See Fig. 4.4).

4.4.2 lateral branch: A shoot or stem growing from another branch (See Fig. 4.4).

4.4.3 parent branch or stem: A tree trunk or branch from which other branches or shoots grow (See Fig. 4.4).

4.4.4 scaffold branch: A primary branch that forms part of the main structure of the crown (See Fig. 4.4).

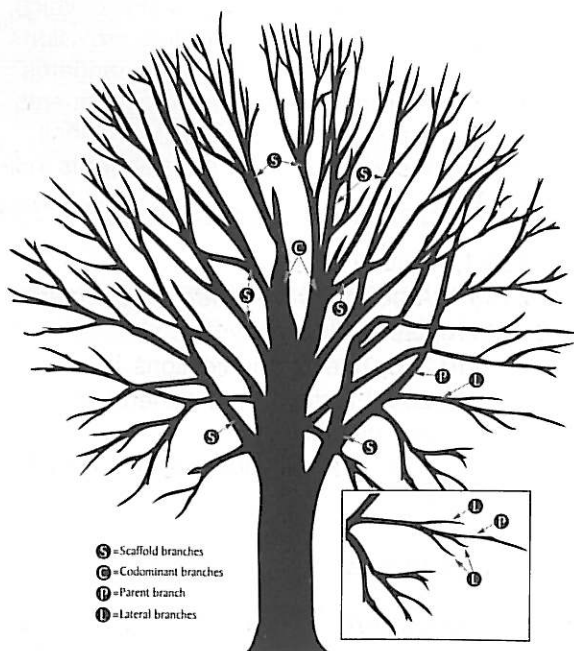


Figure 4.4 Standard branch definitions.

4.5 branch bark ridge: The raised area of bark in the branch crotch that marks where the branch and parent stem meet. (See Figs. 5.3.2 and 5.3.3).

4.6 branch collar: The swollen area at the base of a branch.

4.7 callus: Undifferentiated tissue formed by the cambium around a wound.

4.8 cambium: The dividing layer of cells that forms sapwood (xylem) to the inside and inner bark (phloem) to the outside.

4.9 clean: Selective pruning to remove one or more of the following non-beneficial parts: dead, diseased, and/or broken branches (7.2).

4.10 climbing spurs: Sharp, pointed devices strapped to a climber's lower legs used to assist in climbing trees. (syn.: gaffs, hooks, spurs, spikes, climbers)

4.11 closure: The process in a woody plant by which woundwood grows over a pruning cut or injury.

4.12 crown: Upper part of a tree, measured from the lowest branch, including all the branches and foliage.

4.13 decay: The degradation of woody tissue caused by microorganisms.

4.14 espalier: The combination of pruning, supporting, and training branches to orient a plant in one plane (6.5).

4.15 establishment: The point after planting when a tree's root system has grown sufficiently into the surrounding soil to support growth and anchor the tree.

4.16 facility: A structure or equipment used to deliver or provide protection for the delivery of an essential service, such as electricity or communications.

4.17 frond: A leaf structure of a palm.

4.18 heading: The reduction of a shoot, stem, or branch back to a bud or to a lateral branch not large enough to assume the terminal role.

- 4.19 interfering branches:** Crossing, rubbing, or upright branches that have the potential to damage tree structure and/or health.
- 4.20 internode:** The area between lateral branches or buds.
- 4.21 job briefing:** The communication of at least the following subjects for arboricultural operations: work specifications, hazards associated with the job, work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment.
- 4.22 leader:** A dominant, typically upright, stem – usually the main trunk. There can be several leaders in one tree.
- 4.23 lion's tailing:** The removal of an excessive number of inner and/or lower lateral branches from parent branches. Lion's tailing is not an acceptable pruning practice (6.1.7).
- 4.24 live crown ratio:** Crown height relative to overall plant height.
- 4.25 mechanical pruning:** A pruning technique where large-scale power equipment is used to cut back branches (9.3.2).
- 4.26 method:** A procedure or process for achieving an objective.
- 4.27 peeling:** The removal of dead frond bases without damaging living trunk tissue at the point they make contact with the trunk. (syn.: shaving)
- 4.28 petiole:** A stalk of a leaf or frond.
- 4.29 pollarding:** Pruning method in which tree branches are initially headed and then reduced on a regular basis without disturbing the callus knob (6.6).
- 4.30 pruning:** The selective removal of plant parts to meet specific goals and objectives.
- 4.31 qualified line-clearance arborist:** An individual who, through related training and on-the-job experience, is familiar with the equipment and hazards in line clearance and has demonstrated the ability to perform the special techniques involved. This individual may or may not be currently employed by a line-clearance contractor.
- 4.32 qualified line-clearance arborist trainee:** An individual undergoing line-clearance training under the direct supervision of a qualified line-clearance arborist. In the course of such training, the trainee becomes familiar with the equipment and hazards in line clearance and demonstrates ability in the performance of the special techniques involved.
- 4.33 raise:** Pruning to provide vertical clearance (7.3).
- 4.34 reduce:** Pruning to decrease height and/or spread (7.4).
- 4.35 remote area:** As used in the utility pruning section of this standard, an unpopulated area.
- 4.36 restoration:** Pruning to redevelop structure, form, and appearance of topped or damaged trees (6.3).
- 4.37 rural area:** As used in the utility pruning section of this standard, a sparsely populated place away from large cities, suburbs, or towns but distinct from remote areas.
- 4.38 shall:** As used in this standard, denotes a mandatory requirement.
- 4.39 shoot:** Stem or branch and its leaves, especially when young.
- 4.40 should:** As used in this standard, denotes an advisory recommendation.
- 4.41 specifications:** A document stating a detailed, measurable plan or proposal for provision of a product or service.
- 4.42 sprouts:** New shoots originating from epicormic or adventitious buds, not to be confused with suckers. (syn.: watersprouts, epicormic shoots)
- 4.43 standard, ANSI A300:** The performance parameters established by industry consensus as a rule for the measure of extent, quality, quantity, value or weight used to write specifications.
- 4.44 stem:** A woody structure bearing buds, foliage, and giving rise to other stems.
- 4.45 structural pruning:** Pruning to improve branch architecture (6.2).

4.46 stub: Portion of a branch or stem remaining after an internodal cut or branch breakage.

4.47 subordination: Pruning to reduce the size and ensuing growth rate of a branch or leader in relation to other branches or leaders.

4.48 sucker: Shoot arising from the roots.

4.49 thin: pruning to reduce density of live branches (7.5).

4.50 throw line: A small, lightweight line with a weighted end used to position a climber's rope in a tree.

4.51 topping: Reduction of tree size using internodal cuts without regard to tree health or structural integrity. Topping is not an acceptable pruning practice (6.1.7).

4.52 tracing: The removal of loose, damaged tissue from in and around the wound.

4.53 trunk: The main woody part of a tree beginning at and including the trunk flare and extending up into the crown from which scaffold branches grow.

4.54 trunk flare: 1. The area at the base of the plant's trunk where it broadens to form roots. 2. The area of transition between the root system and trunk (syn.: root flare).

4.55 urban/residential areas: Populated areas including public and private property that are normally associated with human activity.

4.56 utility: A public or private entity that delivers a public service, such as electricity or communications.

4.57 utility space: The physical area occupied by a utility's facilities and the additional space required to ensure its operation.

4.58 vista/view prune: Pruning to enhance a specific view without jeopardizing the health of the tree (6.4).

4.59 wound: An opening that is created when the bark of a live branch or stem is cut, penetrated, damaged, or removed.

4.60 woundwood: Partially differentiated tissue responsible for closing wounds. Woundwood develops from callus associated with wounds.

5 Pruning practices

5.1 Tree inspection

5.1.1 An arborist or arborist trainee shall visually inspect each tree before beginning work.

5.1.2 If a condition is observed requiring attention beyond the original scope of the work, the condition should be reported to an immediate supervisor, the owner, or the person responsible for authorizing the work.

5.1.3 Job briefings shall be performed as outlined in ANSI Z133.1, subclause 3.1.4.

5.2 Tools and equipment

5.2.1 Equipment, tools, and work practices that damage living tissue and bark beyond the scope of normal work practices shall be avoided.

5.2.2 Climbing spurs shall not be used when entering and climbing trees for the purpose of pruning.

Exceptions:

- when branches are more than throw-line distance apart and there is no other means of climbing the tree;
- when the outer bark is thick enough to prevent damage to the inner bark and cambium;
- in remote or rural utility rights-of-way.

5.3 Pruning cuts

5.3.1 Pruning tools used in making pruning cuts shall be sharp.

5.3.2 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent branch without cutting into the branch bark ridge or branch collar or leaving a stub (see Figure 5.3.2).

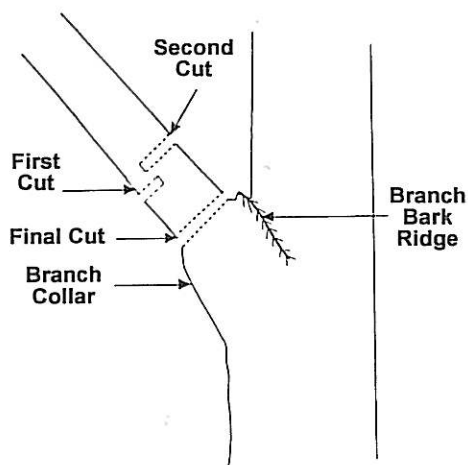


Figure 5.3.2. A cut that removes a branch at its point of origin. (See Annex A – Pruning cut guideline).

5.3.3 A pruning cut that reduces the length of a branch or parent stem shall be made at a slight downward angle relative to the remaining stem and not damage the remaining stem. Smaller cuts shall be preferred (see Fig. 5.3.3).

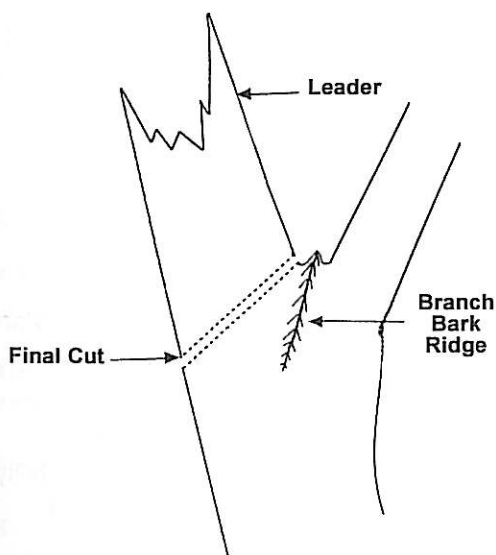


Figure 5.3.3. A cut that reduces the length of a branch or parent stem.

5.3.4 When pruning to a lateral, the remaining lateral branch should be large enough to assume the terminal role.

5.3.5 The final cut should result in a flat surface with adjacent bark firmly attached.

5.3.6 When removing a dead branch, the final cut shall be made just outside the collar of living tissue.

5.3.7 Tree branches shall be removed in such a manner so as to avoid damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark (see Figure 5.3.2). Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

5.3.8 A cut that removes a branch with a narrow angle of attachment should be made from the outside of the branch to prevent damage to the parent branch (see Figure 5.3.8).

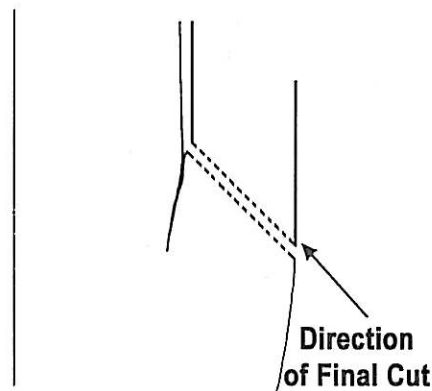


Figure 5.3.8. A cut that removes a branch with a narrow angle of attachment.

5.3.9 Severed branches shall be removed from the crown upon completion of the pruning, at times when the tree would be left unattended, or at the end of the workday.

5.4 Wound treatment

5.4.1 Wound treatments shall not be used to cover wounds or pruning cuts, except when necessary for disease, insect, mistletoe, or sprout control, or for cosmetic reasons.

5.4.2 Wound treatments that are damaging to tree tissues shall not be used.

5.4.3 When tracing wounds, only loose, damaged tissue shall be removed.

6 Pruning objectives

6.1 Pruning objectives shall be established prior to beginning any pruning operation.

6.1.1 Objectives should include, but are not limited to, one or more of the following:

- Risk reduction
- Manage health
- Clearance
- Structural improvement/correction
- View improvement/creation
- Aesthetic improvement
- Restoration

6.1.2 Established objectives should be specified in writing (See Annex B – *Specification writing guideline*).

6.1.3 To obtain the defined objective, the growth cycles, structure, species, and the extent of pruning to be performed shall be considered.

6.1.4 Not more than 25 percent of the foliage should be removed within an annual growing season. The percentage and distribution of foliage to be removed shall be adjusted according to the plant's species, age, health, and site.

6.1.5 When frequent excessive pruning is necessary for a tree to avoid conflicts with elements such as infrastructure, view, traffic, or utilities, removal or relocation of the tree shall be considered.

6.1.6 Pruning cuts should be made in accordance with section 5.3 *Pruning cuts*.

6.1.7 Topping and lion's tailing shall be considered unacceptable pruning practices for trees.

6.2 Structural: Structural pruning shall consist of selective pruning to improve tree and branch architecture primarily on young- and medium-aged trees.

6.2.1 Size and location of leaders or branches to be subordinated or removed should be specified.

6.2.2 Dominant leader(s) should be selected for development as appropriate.

6.2.3 Strong, properly spaced scaffold branch structure should be selected and maintained by reducing or removing others.

6.2.4 Temporary branches should be retained or reduced as appropriate.

6.2.5 Interfering, overextended, defective, weak, and poorly attached branches should be removed or reduced.

6.2.6 At planting, pruning should be limited to cleaning (7.2).

6.3 Restoration: Restoration shall consist of selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized, or damaged trees.

6.3.1 Location in tree, size range of parts, and percentage of sprouts to be removed should be specified.

6.4 Vista/view: Vista/view pruning shall consist of the use of one or more pruning methods (types) to enhance a specific line of sight.

6.4.1 Pruning methods (types) shall be specified.

6.4.2 Size range of parts, location in tree, and percentage of foliage to be removed should be specified.

6.5 Espalier

6.5.1 Branches that extend outside the desired plane of growth shall be pruned or tied back.

6.5.2 Ties should be replaced as needed to prevent girdling the branches at the attachment site.

6.6 Pollarding

6.6.1 Consideration shall be given to the ability of the individual tree to respond to pollarding.

6.6.2 Management plans shall be made prior to the start of the pollarding process for routine removal of sprouts.

6.6.3 Heading cuts shall be made at specific locations to start the pollarding process. After the initial cuts are made, no additional heading cuts shall be made.

6.6.4 Sprouts growing from the cut ends of branches (knuckles) should be removed annually during the dormant season.

7 Pruning methods (types)

7.1 One or more of the following methods (types) shall be specified to achieve the objective.

7.2 Clean: Cleaning shall consist of pruning to remove one or more of the following non-beneficial parts: dead, diseased, and/or broken branches.

7.2.1 Location of parts to be removed shall be specified.

7.2.2 Size range of parts to be removed shall be specified.

7.3 Raise: Raising shall consist of pruning to provide vertical clearance.

7.3.1 Clearance distance shall be specified.

7.3.2 Location and size range of parts to be removed should be specified.

7.3.3 Live crown ratio should not be reduced to less than 50 percent.

7.4 Reduce: Reducing shall consist of pruning to decrease height and/or spread.

7.4.1 Consideration shall be given to the ability of a species to tolerate this type of pruning.

7.4.2 Location of parts to be removed or clearance requirements shall be specified.

7.4.3 Size of parts should be specified.

7.5 Thin: Thinning shall consist of selective pruning to reduce density of live branches.

7.5.1 Thinning should result in an even distribution of branches on individual branches and throughout the crown.

7.5.2 Not more than 25 percent of the crown should be removed within an annual growing season.

7.5.3 Location of parts to be removed shall be specified.

7.5.4 Percentage of foliage and size range of parts to be removed shall be specified.

8 Palm pruning

8.1 Palm pruning should be performed when fronds, fruit, or loose petioles may create a dangerous condition.

8.2 Live healthy fronds should not be removed.

8.3 Live, healthy fronds above horizontal shall not be removed. Exception: Palms encroaching on electric supply lines (see Fig. 8.3a and 8.3b).

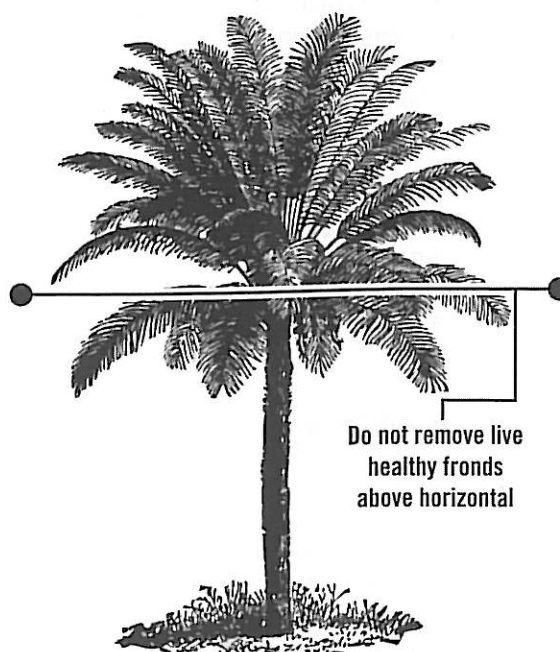


Figure 8.3a Frond removal location.

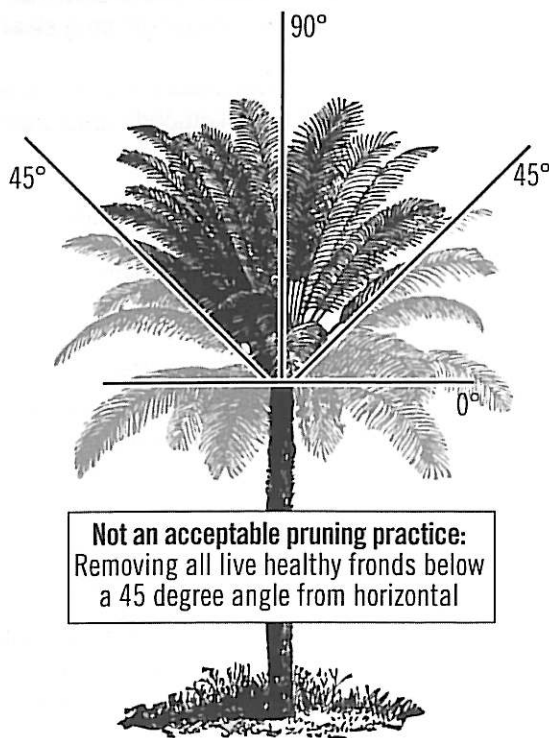


Figure 8.3b An overpruned palm (not an acceptable pruning practice).

8.4 Fronds removed should be severed close to the petiole base without damaging living trunk tissue.

8.5 Palm peeling (shaving) should consist of the removal of only the dead frond bases at the point they make contact with the trunk without damaging living trunk tissue.

9 Utility pruning

9.1 Purpose

The purpose of utility pruning is to prevent the loss of service, comply with mandated clearance laws, prevent damage to equipment, maintain access, and uphold the intended usage of the facility/utility space while adhering to accepted tree care performance standards.

9.2 General

9.2.1 Only a qualified line-clearance arborist or line-clearance arborist trainee shall be assigned to

line clearance work in accordance with ANSI Z133.1, 29 CFR 1910.331 – 335, 29 CFR 1910.268 or 29 CFR 1910.269.

9.2.2 Utility pruning operations are exempt from requirements in subclause 5.1, *Tree Inspection*, for conditions outside the utility pruning scope of work.

9.2.3 Job briefings shall be performed as outlined in ANSI Z133.1, subclause 3.1.4.

9.3 Utility crown reduction pruning

9.3.1 Urban/residential areas

9.3.1.1 Pruning cuts should be made in accordance with subclause 5.3, *Pruning cuts*. The following requirements and recommendations of 9.3.1.1 are repeated from subclause 5.3 *Pruning cuts*.

9.3.1.1.1 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent branch, without cutting into the branch bark ridge or collar, or leaving a stub (see Figure 5.3.2).

9.3.1.1.2 A pruning cut that reduces the length of a branch or parent stem shall be made at a slight downward angle relative to the remaining stem and not damage the remaining stem. Smaller cuts shall be preferred (see Fig. 5.3.3).

9.3.1.1.3 The final cut shall result in a flat surface with adjacent bark firmly attached.

9.3.1.1.4 When removing a dead branch, the final cut shall be made just outside the collar of living tissue.

9.3.1.1.5 Tree branches shall be removed in such a manner so as not to cause damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be pre-cut to avoid splitting of the wood or tearing of the bark (see Figure 5.3.2). Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

9.3.1.1.6 A cut that removes a branch with a narrow angle of attachment should be made from the outside of the branch to prevent damage to the parent branch (see Figure 5.3.8).

9.3.1.2 A minimum number of pruning cuts should be made to accomplish the purpose of facility/utility pruning. The structure and growth habit of the tree should be considered.

9.3.1.3 Trees directly under and growing into facility/utility spaces should be removed or pruned. Such pruning should be done by removing entire branches or leaders or by removing branches that have laterals growing into (or once pruned, will grow into) the facility/utility space.

9.3.1.4 Trees growing next to, and into or toward, facility/utility spaces should be pruned by reducing branches to laterals (5.3.3) to direct growth away from the utility space or by removing entire branches. Branches that, when cut, will produce sprouts that would grow into facilities and/or utility space should be removed.

9.3.1.5 Branches should be cut to laterals or the parent branch and not at a pre-established clearing limit. If clearance limits are established, pruning cuts should be made at laterals or parent branches outside the specified clearance zone.

9.3.2 Rural/remote locations – mechanical pruning

Cuts should be made close to the main stem, outside of the branch bark ridge and branch collar. Precautions should be taken to avoid stripping or tearing of bark or excessive wounding.

9.4 Emergency service restoration

During a utility-declared emergency, service must be restored as quickly as possible in accordance with ANSI Z133.1, 29 CFR 1910.331 – 335, 29 CFR 1910.268, or 29 CFR 1910.269. At such times, it may be necessary, because of safety and the urgency of service restoration, to deviate from the use of proper pruning techniques as defined in this standard. Following the emergency, corrective pruning should be done as necessary.

Annex A

Pruning cut guideline

A-1 Three-cut method

Multiple cutting techniques exist for application of a three-cut method. A number of them may be used to implement an acceptable three-cut method.

A-1.1 The technique depicted in *Figure 5.3.2* demonstrates one example of a three-cut method that is common to hand-saw usage. It is not intended to depict all acceptable three-cut method techniques.

Annex B

Specification writing guideline

A300 (Part 1)-2008 *Pruning* standards are performance standards, and shall not be used as job specifications. Job specifications should be clearly detailed and contain measurable criteria.

The words "should" and "shall" are both used when writing standards. The word "shall" is used when writing specifications.

Writing specifications can be simple or complex and can be written in a format that suits your company/the job. The specifications consist of two sections.

I. General:

This section contains all aspects of the work to be performed that needs to be documented, yet does not need to be detailed.

Saying under the General section that "all work shall be completed in compliance with A300 Standards" means the clauses covering safety, inspections, cuts, etc. will be adhered to. There is no need to write each and every clause into every job specification.

Other items that may be covered in the General section could be: work hours and dates, traffic issues, disposal criteria, etc.

The second section under Job Specifications would be:

II. Details:

This section provides the clear and measurable criteria; the deliverables to the client.

This section, to be written in compliance with A300 standards, shall contain the following information:

1. Objective – Clause 6

These objectives originate from/with the tree owner or manager. The arborist shall clearly state what is going to be done to achieve the objective(s).

Objectives can be written for the entire job or individual trees. Rarely can one or two words clearly convey an objective so that all parties involved (client, sales, crew, etc.) can visualize the outcome.

2. Method – Clause 7

Here the method(s) to be used to achieve the objective are stated. Again, depending on the type of job, this can be stated for the individual tree or a group of trees.

3. Location – Clause 7.2.1, 7.3.2, 7.4.2, 7.5.3

This is the location in the tree(s) that the work methods are to take place.

4. Density – Clause 7.3.1, 7.3.3, 7.5.1, 7.5.2, 7.5.4

This is the amount or volume of parts that are to be removed and can be stated exactly or in ranges.

5. Size – Clause 7.2.2, 7.3.2, 7.4.3, 7.5.4

This is the size or range of sizes of cut(s) utilized to remove the volume specified.

NOTE: Items # 4 & 5 are directly related to resource allocation, staffing and dollars.

SAMPLE PRUNING SPECIFICATIONS

#1. Scope: Large live oak on west side of pool

Objectives: Increase light penetration through east side of tree. Reduce risk potential of 1-inch-diameter branches falling.

Specifications: All broken branches and 1-inch-plus diameter dead branches shall be removed from the crown.

The three lowest 8-inch-plus diameter branches on the east side shall be thinned 25 percent with 1-inch- to 3-inch-diameter cuts.

NOTE: All work shall be completed in compliance with ANSI A300 and Z133.1 Standards.

Annex B

Specification writing guideline

#2. Scope: 1 Arizona ash

Objective: Enhance structure/structural development.

Specifications: General:

All pruning shall be completed in compliance with A300 Standards.

Detail:

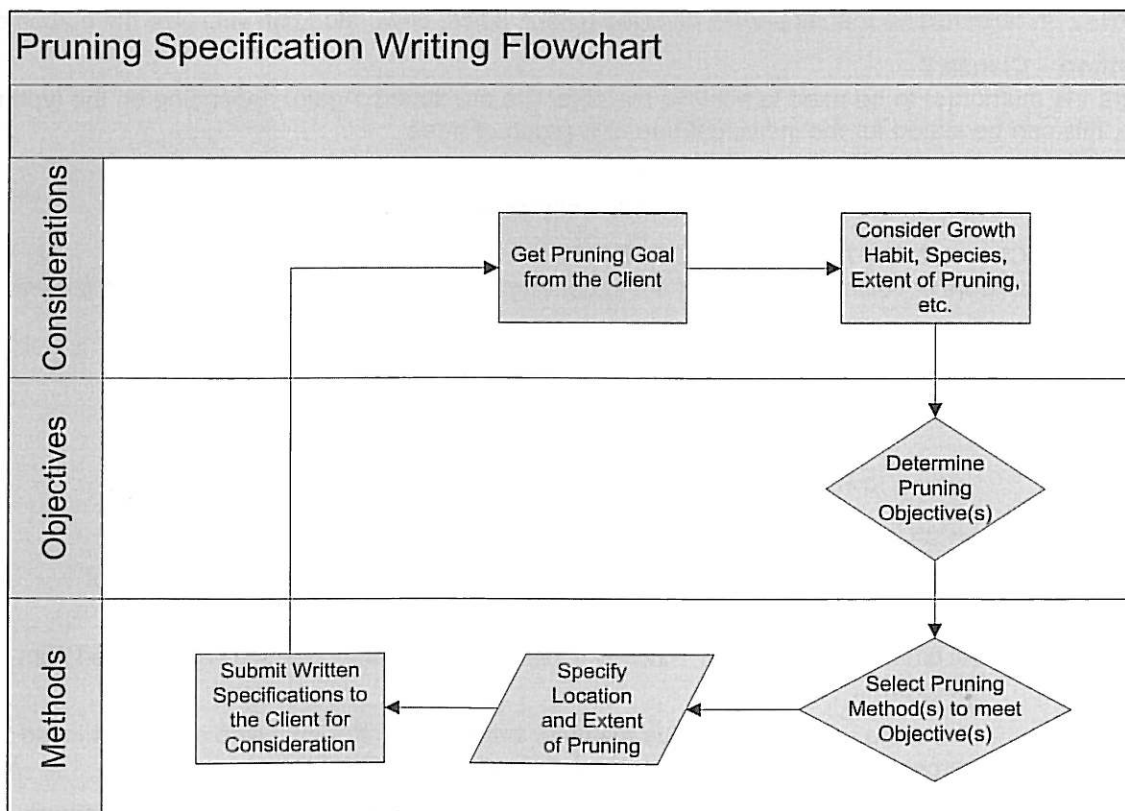
Thin crown 20-25 percent with 1-inch- to 4-inch-diameter cuts. Reduce west codominant leader by approximately 12 feet.

#3. Scope: Twenty-three newly installed evergreen elms

Objective: Maximize establishment – reduce nuisance while enhancing natural growth habit.

All work shall be completed in compliance with A300 Standards and the following specifications.

- Specifications:**
- Retain as much size as possible and 80-90 percent density of foliage.
 - Lowest permanent branch will be 6 feet above grade in four to five years.
 - Retain all sprout growth originating 18 inches above grade on trunk and 4 inches out from branch attachments throughout crown.
 - Remove weakest rubbing branches.
 - Remove dead branches.
 - Reduce broken branches or branches with dead ends back to live laterals or buds. Heading cuts can be used.
 - Maintain 6 inches behind adjacent edge of walks all growth that originates between 1.5 feet (18 inches) and 6 feet (72 inches) above grade. Heading cuts are acceptable.



Annex C

Applicable ANSI A300 interpretations

The following interpretations apply to Part 1 – *Pruning*:

C-1 Interpretation of “should” in ANSI A300 standards

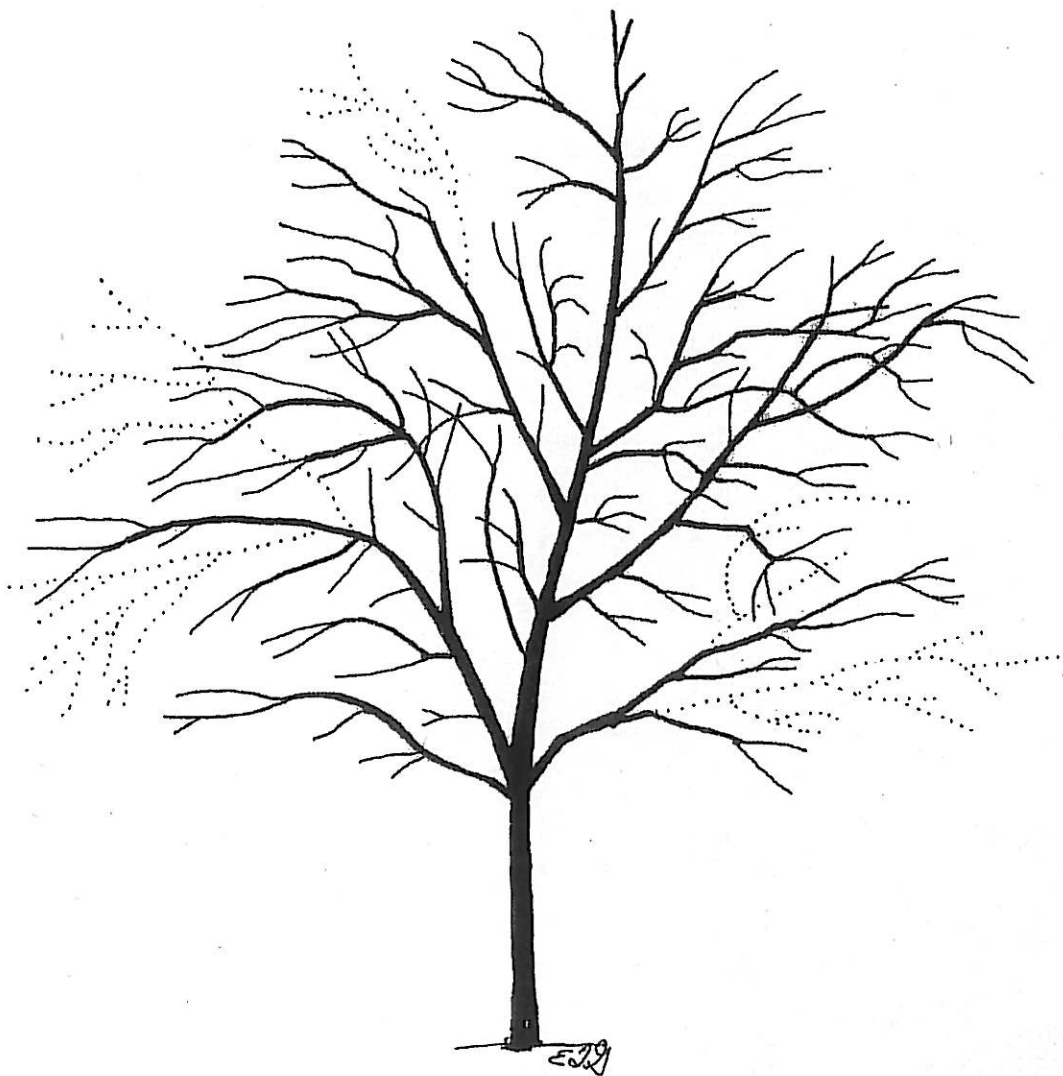
“An advisory recommendation” is the common definition of “should” used in the standards development community and the common definition of “should” used in ANSI standards. An advisory notice is not a mandatory requirement. Advisory recommendations may not be followed when defensible reasons for non-compliance exist.

C-2 Interpretation of “shall” in ANSI A300 standards

“A mandatory requirement” is the common definition of “shall” used in the standards development community and the common definition of “shall” used in ANSI standards. A mandatory requirement is not optional and must be followed for ANSI A300 compliance.

Best Management Practices

TREE PRUNING (Revised 2008)



**Companion publication to the ANSI A300 Part 1: Tree, Shrub, and
Other Woody Plant Maintenance—Standard Practices, Pruning**

Best Management Practices

TREE PRUNING (Revised 2008)

Edward F. Gilman and Sharon J. Lilly

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Purpose

Professionals in the field of arboriculture established a committee to develop standards for tree maintenance designed to provide a more uniform level of service and to help ensure public safety. This committee, working under the auspices of the American National Standards Institute (ANSI), developed standards for pruning, fertilization, support systems, and other aspects of tree care. *ANSI A300, The American National Standard for Tree Care Operations—Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices* was written to provide minimal performance standards for use in writing maintenance specifications.

The International Society of Arboriculture (ISA) has developed companion publications known as Best Management Practices to aid in the interpretation and implementation of ANSI A300 standards. These publications are intended as guides for practicing arborists, tree workers, their supervisors, and the people who employ their services.

Because trees are unique living organisms, not all practices can be applied to all trees. It is important that contracts and specifications developed using these guidelines and the ANSI A300 standards are written or reviewed by a knowledgeable arborist. Departures from the standards should be made with careful consideration of the objectives and with supporting rationale.

Best Management Practices: Tree Pruning is the companion publication to *ANSI A300 Part 1—Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices, Pruning*.

Introduction

This document addresses the question “How do I ensure that my pruning meets industry standards and customer expectations while causing minimal harm to the tree?” It provides reasons why pruning is undertaken, explains pruning types and amounts, provides background on pruning cuts, reviews sample specifications, and comments on timing of these operations. Experience and observation teach the truth in Alex Shigo’s observation: “Pruning is one of the best things an arborist can do for a tree but one of the worst things we can do to a tree.” Pruning is a double-edged sword, either helping or hurting—depending on where, when, how, and why it is applied.

When pruning is properly executed, a variety of benefits are derived. Benefits include reduced risk of branch and stem breakage, better clearance for vehicles and pedestrians, improved health and appearance, enhanced view, and increased flowering. When improperly performed, pruning can harm the tree’s health, stability, and appearance. Several consequences occur when pruning is not performed at all (Figure 1). These consequences include development of low limbs; weak, codominant stems; defects such as included bark; and accumulation of dead branches. Formation of codominant stems and defects such as included bark can lead to increased risk of breakage.

One of the most common defects in planted trees is formation of large, low limbs. They could overextend and break, or they may droop under their own weight and have to be removed later, leaving a large pruning wound. Removal of large branches and those more than about half the trunk diameter is more likely to initiate decay than removal of smaller branches. Therefore, measures should be taken to minimize occurrence of this defect.

On mature trees, live branch removal is less desirable than it is on young trees, but sometimes it is necessary. However, cleaning the crown by removing dead, diseased, or broken branches is a highly recommended practice on mature trees. Because reduction cuts can initiate problems, perform crown reduction only after other options have been considered. Do not remove small interior branches because doing so adversely affects tree structure and can increase failure potential. Trees planted for use as shade trees should not be topped or rounded-over with heading cuts because this practice creates weak structure, exposes wood to infection, can initiate cracks and decay, and looks terrible. Topping also has been shown to increase risk of failure. Reaction zones can reduce available stored energy reserves, making such reserves less available for tree growth and defense.

It is essential first to evaluate the tree and the customer’s needs to determine which objectives should be accomplished with pruning. Appropriate pruning meth-

ods can be chosen to meet these objectives. The arborist then enters the tree and makes appropriate pruning cuts for the chosen pruning methods. This decision is based on an understanding of branch attachment and tree biology.

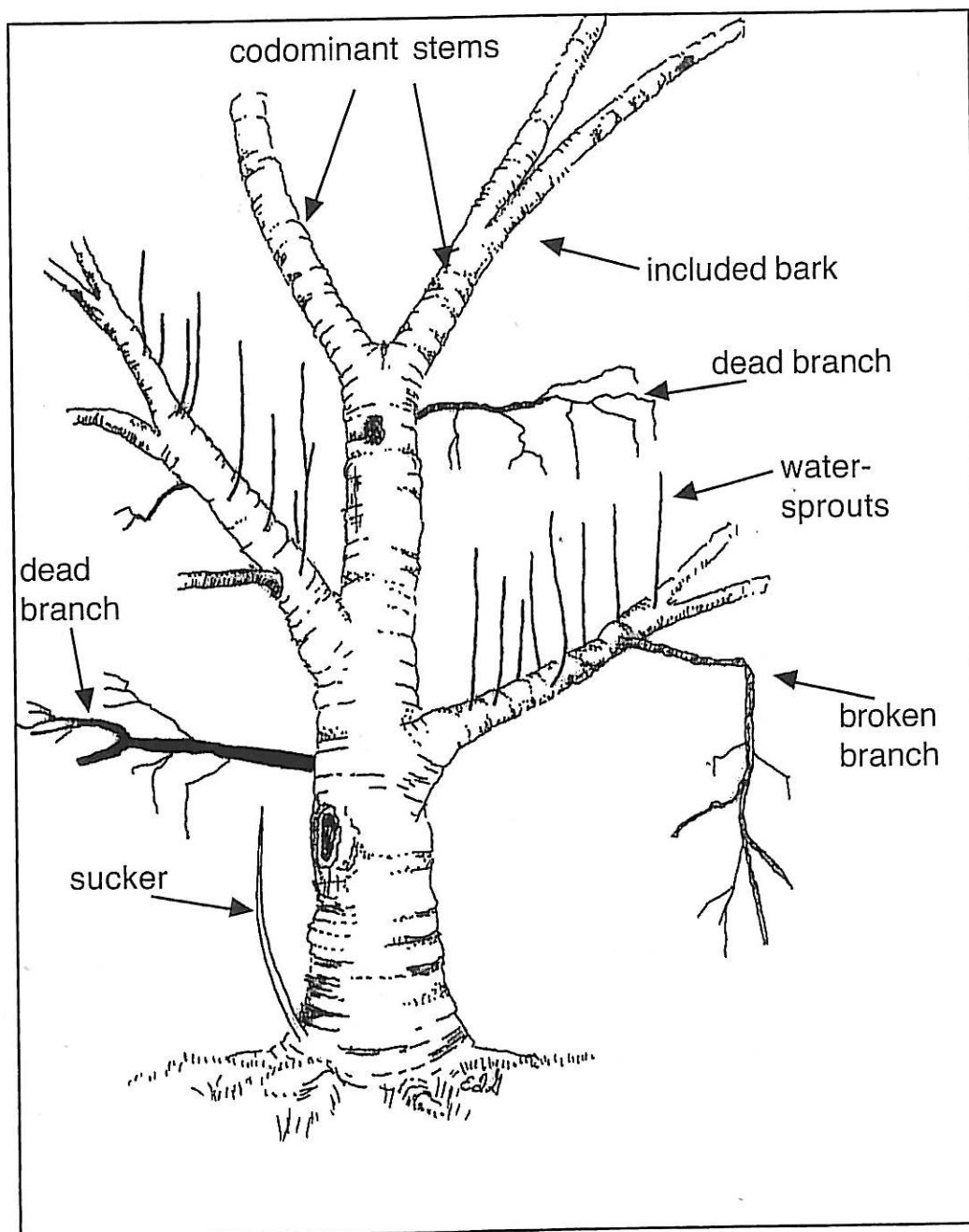


Figure 1. Problems can develop on trees—including codominant stems; included bark; broken and dead branches; suckers and watersprouts; and large, low limbs that require removal.

Pruning Objectives

No tree should be pruned without first establishing clearly defined objectives. Seven main objectives are described (Table 1), along with pruning types that help meet those objectives. These objectives serve as examples and can be expanded or shortened to meet site conditions and customer expectations. Removing the correct stems and branches to accomplish specified objectives is as important as making correct pruning cuts. Even with proper pruning cuts, if the wrong branches — or too many branches — are removed, nothing of merit has been accomplished.

Table 1. Objectives of pruning.

-
- Reduce risk of failure
 - Provide clearance
 - Reduce shade and wind resistance
 - Maintain health
 - Influence flower or fruit production
 - Improve a view
 - Improve aesthetics
-

Reduce Risk of Failure

Risk of tree failure can be reduced by establishing a structural pruning program that begins at planting and could carry through the first 25 years or more, depending on the species. This program should be designed to create structurally sound trunk and branch architecture that will sustain the tree for a long period. Some structural pruning can be conducted on older trees as well. Medium-aged and mature trees can be cleaned, thinned, reduced, raised, or restored to manage risk. The choice among these pruning methods depends on the tree and the situation.

Provide Clearance

Growth can be directed away from an object such as a building, security light, or power line by reducing or removing limbs on that side of the tree. However, trees often grow back to fill the void created by pruning. Regular pruning is required to maintain artificial clearance. Shortening or removing low branches can raise the crown. Crown reduction or pollarding helps maintain a tree smaller than it would be without pruning. Utility pruning keeps limbs clear of overhead wires and other utility structures.

Reduce Shade and Wind Resistance

Lawns, ground covers, or shrubs can receive more sunlight when live foliage is removed from the crowns of large overstory trees. The tree's resistance to wind also can be reduced with pruning. Structural pruning, thinning, reduction, and pollarding are used to accomplish this objective.

Maintain Health

Health can be maintained by cleaning the crown, especially in medium-aged and mature trees. Removing dead, diseased, and rubbing branches in the crowns of young trees also is important.

Influence Flower or Fruit Production

Pruning can influence the number and/or size of flowers or fruit. Fruit size can be increased on certain plants, such as peach, by removing some of the developing fruit or flowers. Flower cluster size can be increased on certain species, such as crapemyrtle, by heading. Fruit production can be eliminated by removing flowers or developing fruit.

Improve a View

A view can be enhanced or created by removing live branches at the edge of the crown, at the top of the tree, or on the lower side of the crown. This pruning can include thinning, reducing, pollarding, and raising.

Improve Aesthetics

A tree can be pruned to improve appearance. Cleaning, reducing, thinning, pollarding, and restoring can be used to meet this objective.

Pruning Methods (Types)

Several pruning methods (types) are used in arboriculture to achieve the tree owner's or manager's objective. The four primary pruning methods include cleaning, thinning, raising, and reducing. Trees are also pruned to improve structure and for crown restoration. When writing job specifications the diameter range and location of the branches and stems to be removed should always be included.

Pruning to Clean

Cleaning is the selective removal of dead, diseased, detached, cracked, and broken branches. This type of pruning is done to reduce the risk of branches falling from the tree and to reduce the movement of decay, insects, and diseases from dead or dying branches into the rest of the tree. It can be performed on trees of any age but is most common on medium-aged and mature trees. Cleaning is the preferred pruning type for mature trees because it does not remove live branches unnecessarily.

The location of branches to be removed should be specified if the entire crown is not going to be cleaned. The diameter of branches to be removed also should be specified. This usually is done by specifying the smallest branch to remove (for example, "clean branches 1 inch [2.5 cm] in diameter and larger").

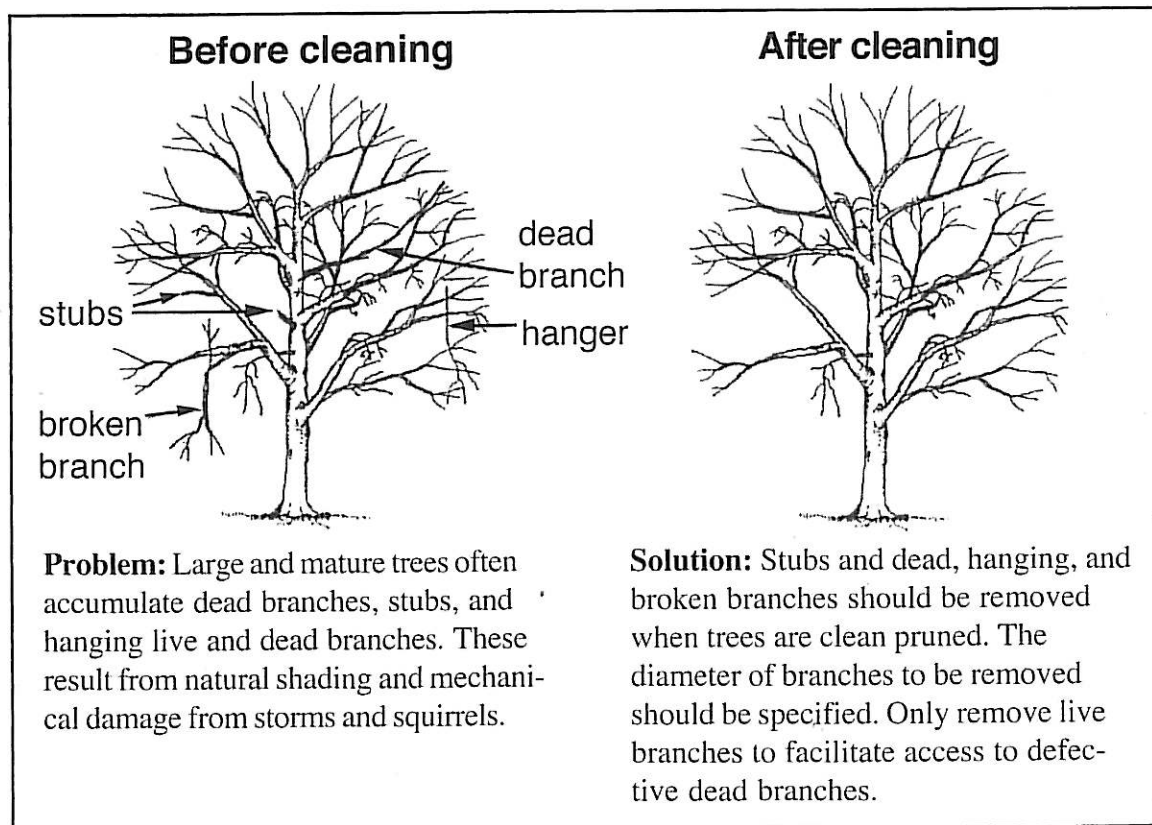


Figure 2. Pruning to clean

Pruning to Thin

Thinning is the selective removal of small live branches to reduce crown density (Figure 3). Because the majority of small branches are at the outside edge of the crown, thinning is focused in that area. Proper thinning retains crown shape and size and should provide an even distribution of foliage throughout the crown.

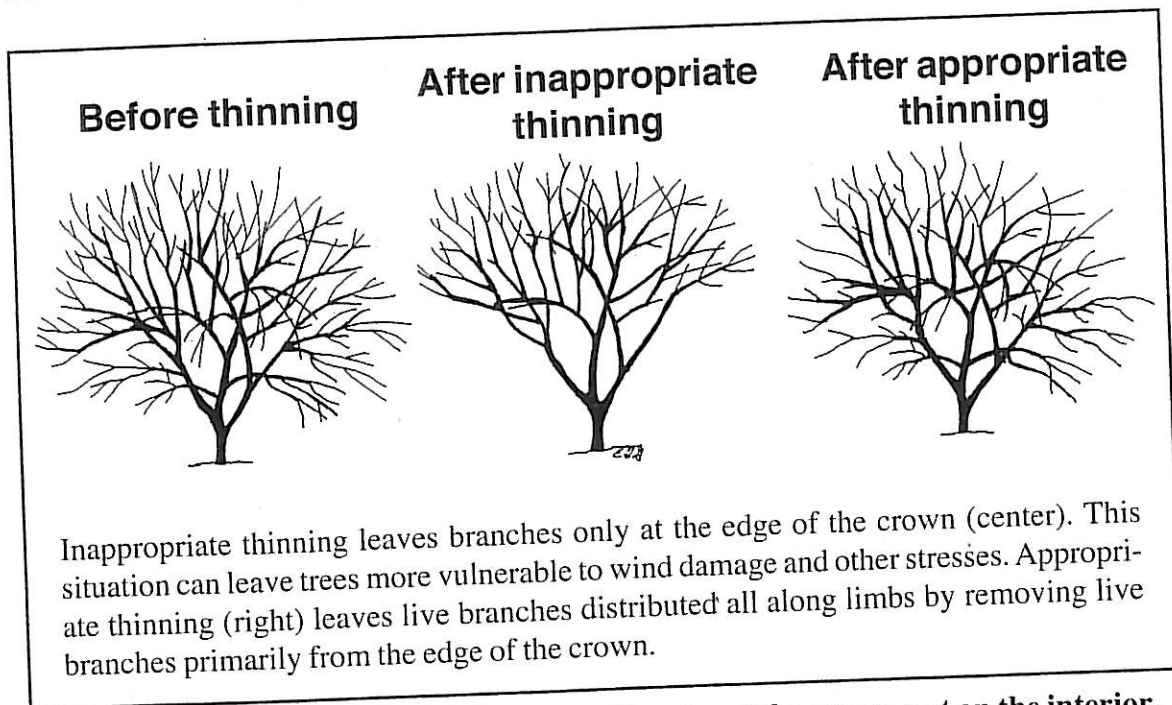


Figure 3. Thinning trees reduces density at the edge of the crown, not on the interior.

Thinning increases sunlight penetration and air movement through the crown. Increased light and air stimulate and maintain interior foliage, which can encourage taper on scaffold branches. Thinning a limb should be considered if cabling will be performed. Thinning also can remove suckers from the base of the tree and *some* watersprouts on the interior. Excessive removal of watersprouts often produces more watersprouts, so it is not recommended. Vigorous production of watersprouts on interior limbs often is a sign of overthinning, topping, or lion tailing.

Excessive branch removal on the lower two-thirds of a branch or stem (lion tailing) can have adverse effects on the tree and therefore is not an acceptable pruning practice (Figure 3). Lion tailing concentrates foliage at the ends of branches and may result in sunburned bark tissue, watersprouts, cracks in branches, reduced branch taper, increased load on branch unions, and weakened branch structure. Lion tailing also changes the dynamics of the limb and often results in excessive branch breakage.

If the entire crown will not be thinned, the areas to be thinned must be specified. The size range and percentage of foliage to be removed also must be specified—usually in the 10 to 15 percent range—but should not exceed 25 percent of the

foliage, especially on mature trees. Most thinning removes branches 1/2 inch (1.5 cm, small trees) to 2.5 inches (6.5 cm, mature trees) in diameter. If larger branches are removed, large gaps may be created in the crown, or watersprouts can result.

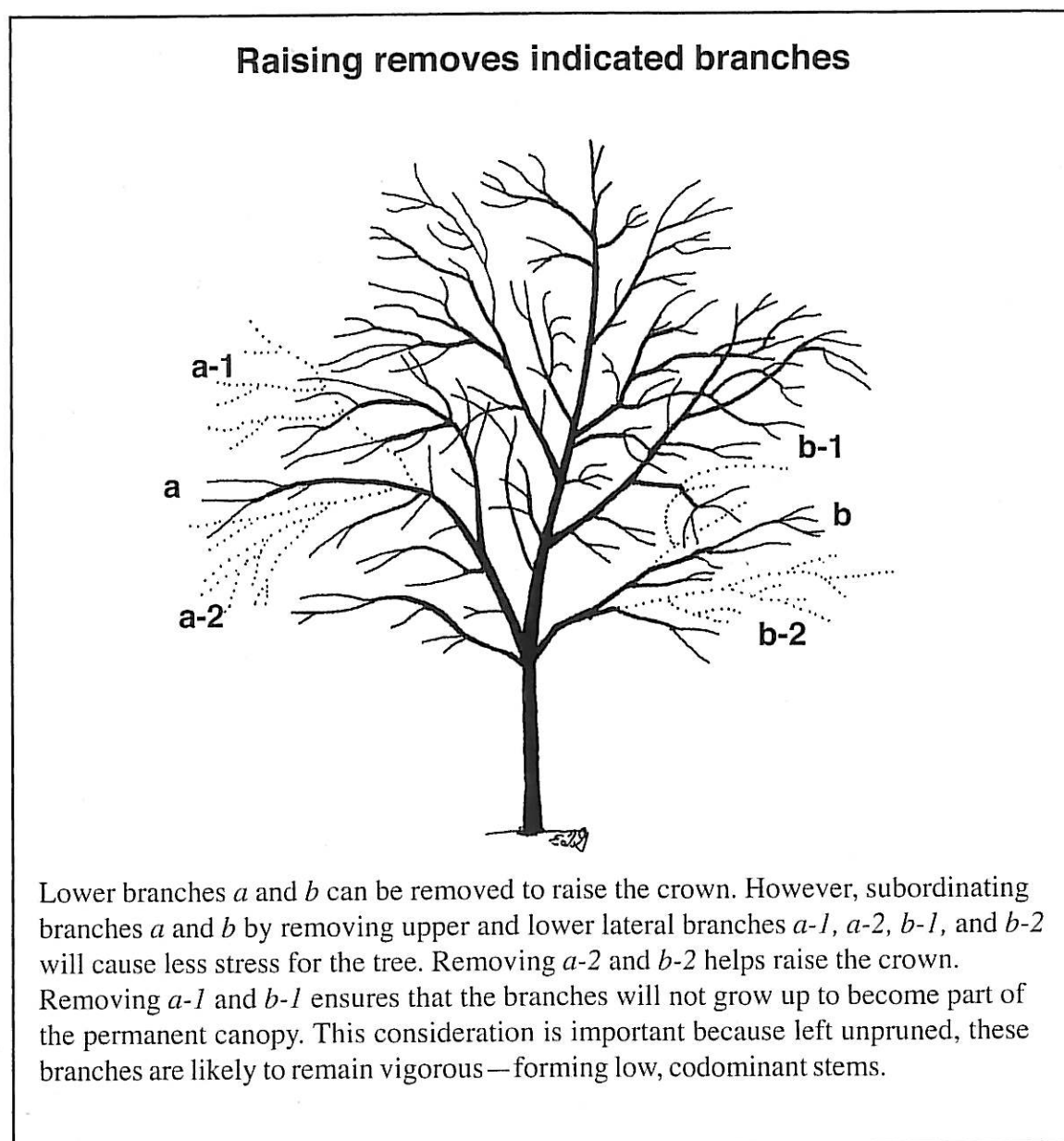


Figure 4. Raising

Pruning to Raise (Elevate, Lift)

Raising is the selective removal of branches to provide vertical clearance. Crown raising shortens or removes lower branches of a tree to provide clearance for buildings, signs, vehicles, pedestrians, and vistas.

Excessive removal of lower limbs can slow development of trunk taper, can cause cracks or decay in the trunk, and concentrates foliage at the top of the tree.

Mature trees could become stressed if large-diameter lower branches are removed. Clearance sometimes can be achieved by shortening some of the low branches rather than removing them to prevent these problems. Live crown ratio should be no less than 50 percent when raising is completed (Figure 4), and more is better. Structural pruning should be considered along with raising.

When raising, the desired clearance should be specified. To differentiate between complete branch removal and shortening, specify the size range of the limbs to remove and their location (for example, “raise 12 feet [3.5 m] above the road by removing downward-growing branches 2 inches [5 cm] in diameter and smaller”).

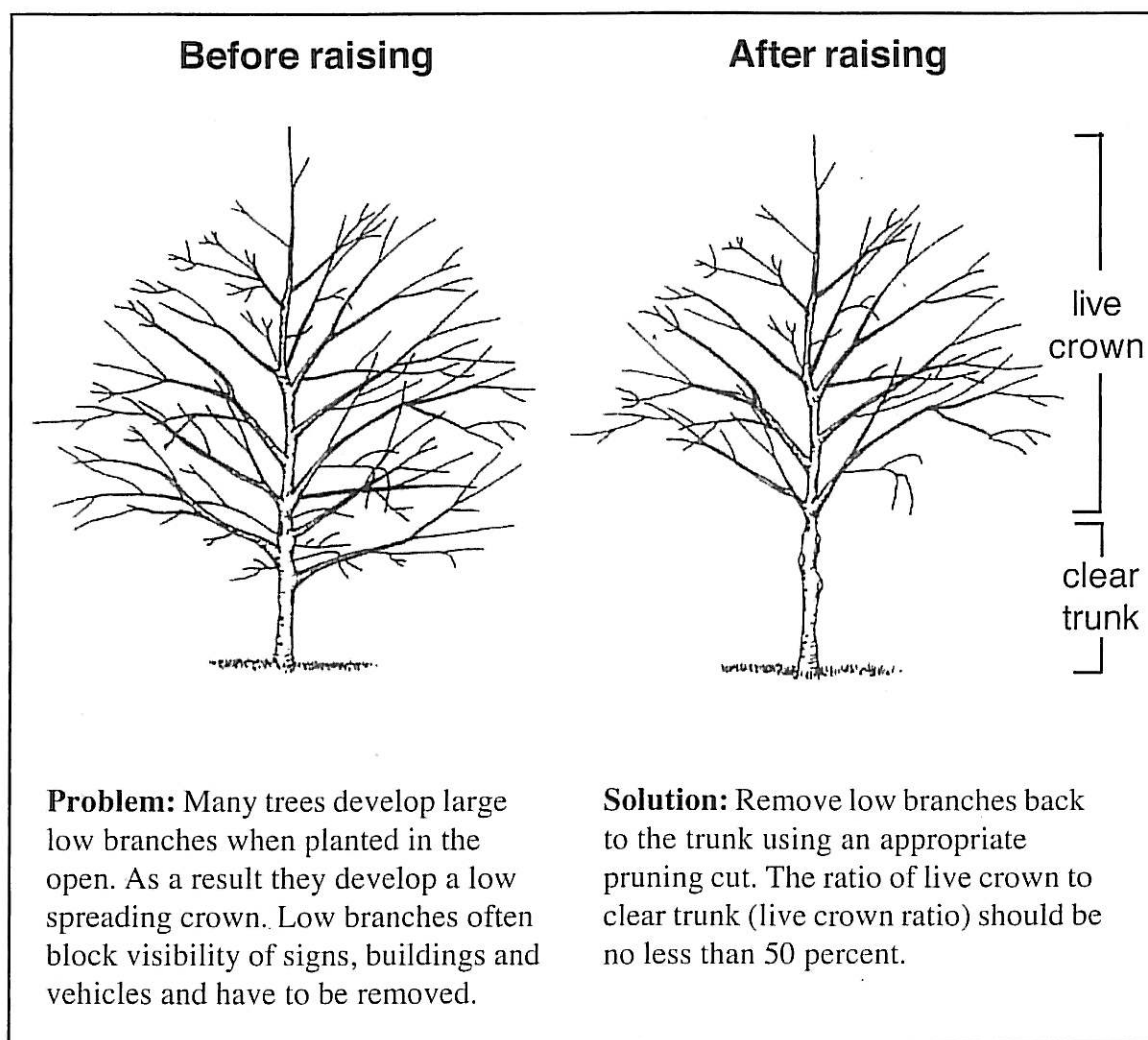


Figure 5. Raising the crown by removing low branches.

Pruning to Reduce (Shape, Drop Crotch)

Reduction is the selective removal of branches and stems to decrease the height and/or spread of a tree or shrub (Figure 6). This type of pruning is done to minimize risk of failure, to reduce height or spread, for utility line clearance, to clear vegetation from buildings or other structures, or to improve the appearance of the plant. Portions of the crown, such as individual limbs, can be reduced to balance the canopy, provide clearance, or reduce likelihood of breakage on limbs with defects. Occasionally, the entire crown is reduced. Reducing or thinning should be considered if cabling would be performed. Crown reduction should be accomplished with reduction cuts, not heading cuts.

Not all tree and shrub species can be reduced. Therefore, the species and plant health should be considered before starting work. Old, stressed, or mature trees could decline or become more stressed as a result of this treatment. When a limb on a

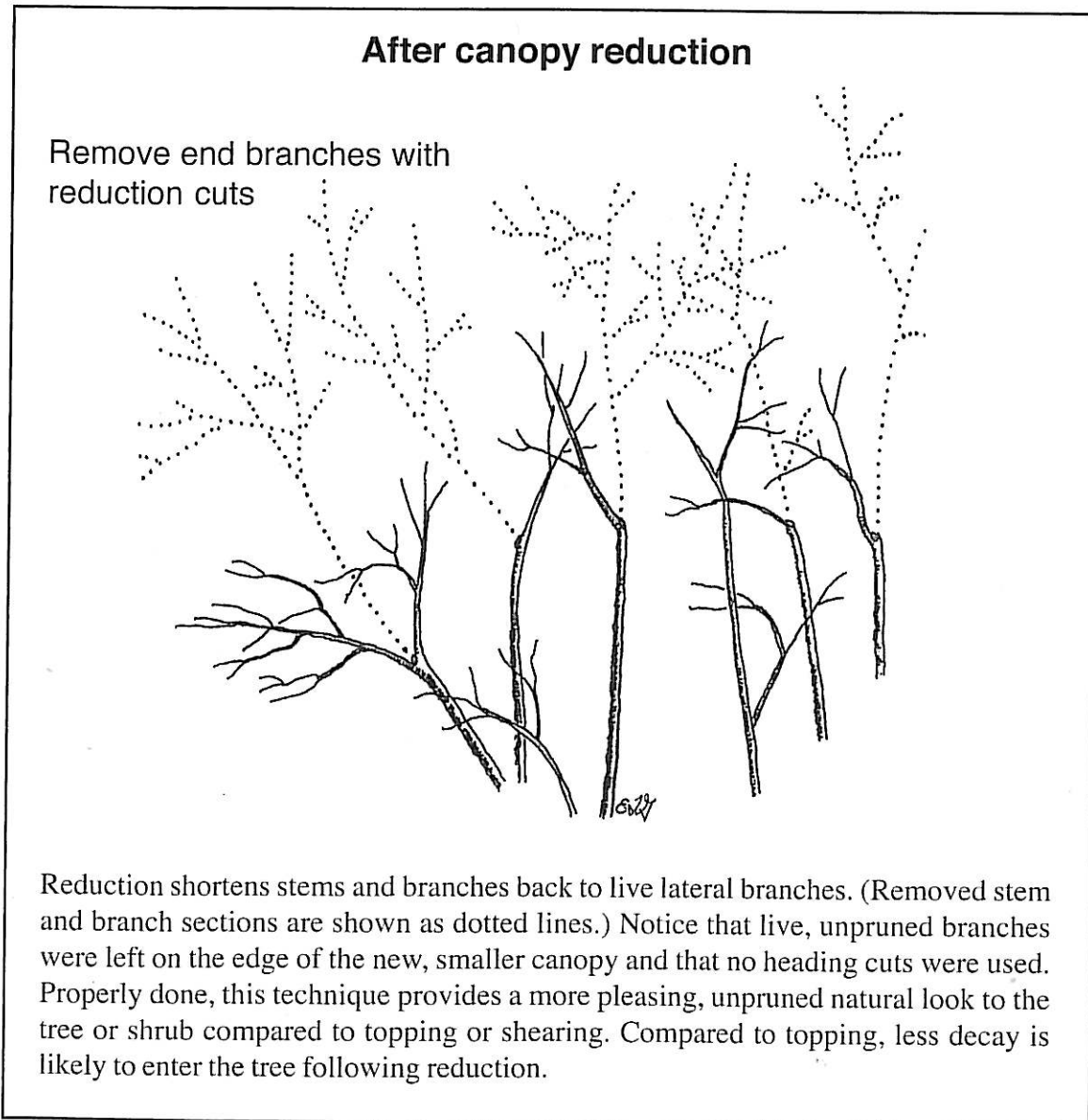


Figure 6. Reduction makes a plant, or portion of a plant, smaller in size.

mature tree is cut back to a lateral, no more than one-fourth of its foliage should be removed in routine tree care. More can be removed when pruning to reduce risk, or on a young tree to accomplish particular objectives. Decay is more likely to enter the tree following reduction than following other pruning types.

The clearance distance or percentage of size reduction should be specified. Because making many small cuts or just a few larger-diameter cuts can reduce a tree, it is important also to specify the size range of cuts. Reduction usually should be done on smaller-diameter branches (for example, 1 to 4 inches [2.5 to 10 cm] for trees and 1/4 to 1 inch [0.5 to 2.5 cm] for shrubs).

Structural Pruning

Structural pruning is the removal of live branches and stems to influence the orientation, spacing, growth rate, strength of attachment, and ultimate size of branches and stems. Structural pruning is used on young and medium-aged trees to help engineer a sustainable trunk and branch arrangement. If young trees are pruned to promote good structure, they likely will remain serviceable in the landscape for more years than trees that have not been structurally pruned. Waiting until the tree grows larger makes structural pruning difficult and is more damaging to the tree.

Structural pruning of large-maturing trees such as maples, eucalyptus, and oaks reduces certain defects and spaces main branches along one dominant trunk. Subordination can reduce branches, so they remain smaller than about half the trunk diameter, which helps prevent structural failure later. This pruning type can be summed up in the phrase: subordinate or remove codominant stems. Small-maturing trees can be trained to several trunks or pruned to develop only one, depending on the situation. Small-maturing trees and shrubs are structurally pruned to properly space codominant stems, reduce or remove rubbing limbs, and provide desirable crown configuration. The maximum diameter of the reduction cuts used with this pruning type should be specified.

Multiple prunings over time (for example, 15 to 25 years) usually are required to develop a dominant leader (Table 2). Competing stems and branches are subordinated (reduced in length) or removed (Figure 7). Subordination usually is preferred over removal, especially if the problem stem or stems are larger than half the trunk diameter. Subordination may cause less trunk decay than removal. The offending

Table 2. To establish a dominant leader on a young or medium-aged tree, follow these four steps to encourage a leader to dominate the crown.

1. Choose the one stem that will make the best leader.
2. Identify which stems and branches are competing with this leader.
3. Decide how much to shorten these competing stems.
4. Prevent branches from growing larger than half the trunk diameter by regular pruning.

stem(s) can always be removed later, if necessary. Cleaning and raising are usually done in conjunction with structural pruning.

The lowest permanent limb should be established by shortening vigorous branches below it and any lower branches that grow up into the crown (Figure 7). This procedure may not be possible on a young tree if all branches are below the best position for the lowest permanent limb. The height of the lowest limb is determined by the location and intended function of the tree. For example, the lowest permanent limb on a street tree might be higher than that on an arboretum specimen.

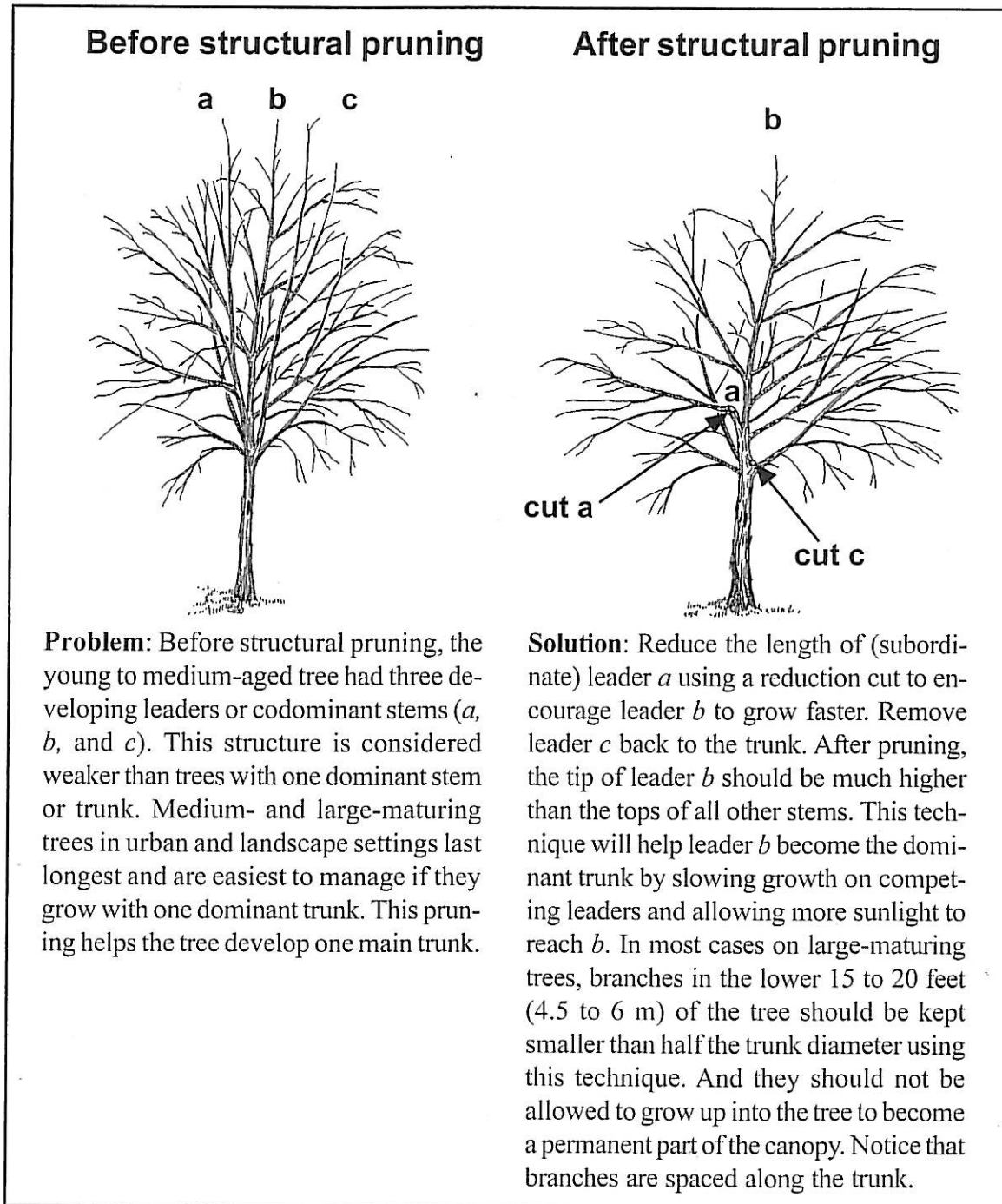


Figure 7. Structural pruning of a small tree.

Select and establish scaffold limbs by subordinating or removing competing stems or branches (Figure 8). Scaffold selection can take 10 to 20 years or more depending on climate, the type of tree, and its location. Scaffold limbs are located above the lowest permanent limb and provide the base on which to build the permanent crown. Scaffold limbs should be free of serious defects such as crooks, included bark, and cracks; should be among the largest on the tree; and should be appropriately spaced. Vertical spacing should be at least 18 inches (46 cm) for large-maturing trees and about 12 inches (30 cm) for smaller trees.

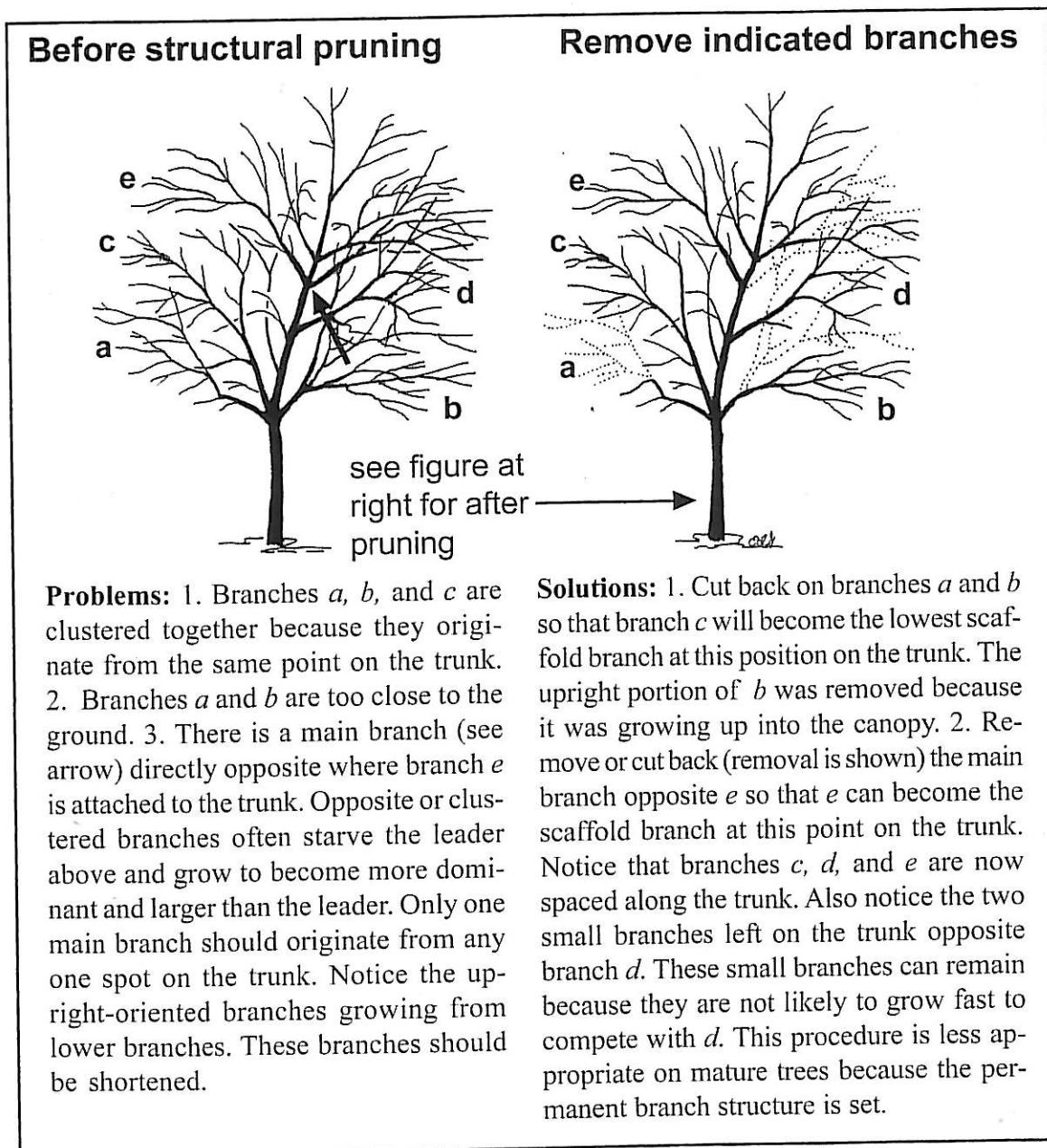


Figure 8. Structural pruning is done to ensure more sustainable growth patterns.

Pruning to Restore

Restoration (remedial pruning) is the selective removal of branches, sprouts, and stubs from trees and shrubs that have been topped, severely headed, vandalized, lion tailed, broken in a storm, or otherwise damaged (Figure 9). The goal of restoration is to improve a tree or shrub's structure, form, or appearance.

On trees with many sprouts originating at the ends of branch stubs, one to three sprouts are selected to become permanent branches and to reform a more natural-appearing crown. To accomplish this objective, consider shortening some sprouts, removing others, and leaving some untouched. Some vigorous sprouts that will remain as branches may need to be shortened to control growth and ensure adequate attachment for the size of the sprout.

Lion-tailed trees can be restored by allowing sprouts to develop along the interior portion of limbs for one to three years depending on size, age, and condition of the tree. Then remove and shorten some of the sprouts along the entire length of the limbs, so they are evenly distributed and spaced apart. Restoration usually requires several prunings over a number of years.

Restoration may require a variety of types of cuts. At times, heading cuts may be preferable to branch removal cuts or reduction cuts to preserve as much of a damaged branch as practical. This is sometimes the case in restoration after storm damage.

Specify the location in the tree (for example, top or interior) and the percentage of sprouts to be removed or reduced. Typically, one-third of the sprouts are removed and one-third are reduced each pruning until adequate branches have developed.

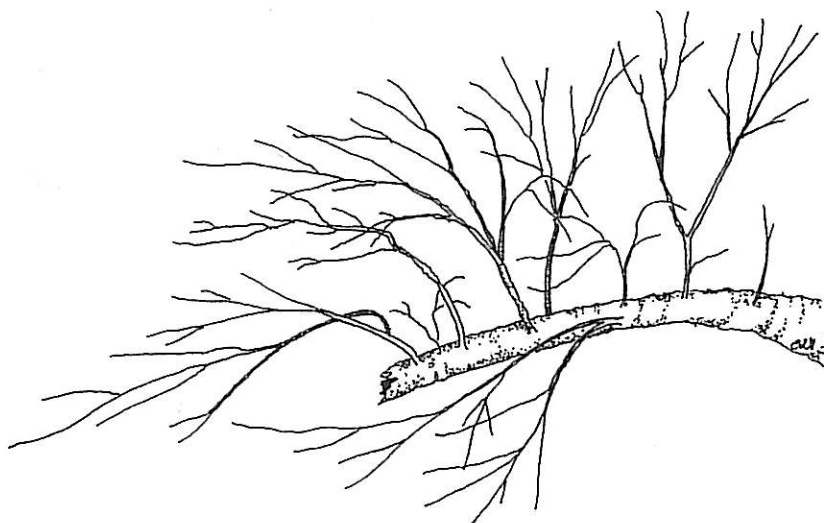
Pollarding

Pollarding is a training system that involves heading the first year followed by annual sprout removal to maintain trees or shrubs at a predetermined size or to maintain a "formal" appearance. Pollarding is not topping. Pollarding historically was used to generate shoots for fuel, shelter, and various products because of the abundance of adventitious sprouts that a tree or shrub produces in this process. The pollarding process should be started on deciduous trees when the tree is young by making heading cuts through stems and branches no more than about three years old.

Table 3. Some species in these genera are known to tolerate pollarding.

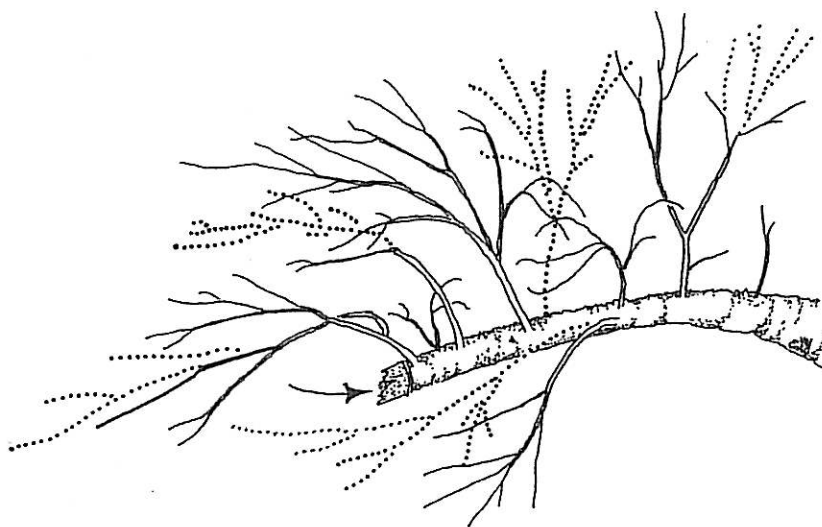
Ash (<i>Fraxinus</i>)
Beech (<i>Fagus</i>)
Catalpa (<i>Catalpa</i>)
Crapemyrtle (<i>Lagerstroemia</i>)
Elm (<i>Ulmus</i>)
Hawthorn (<i>Crataegus</i>)
Horsechestnut (<i>Aesculus</i>)
Japanese quince (<i>Chaenomeles</i>)
Linden (<i>Tilia</i>)
Maple (<i>Acer</i>)
Oak (<i>Quercus</i>)
Pear (<i>Pyrus</i>)
Plane tree (<i>Platanus</i>)
Sweetgum (<i>Liquidambar</i>)

Before restoration



Problem: Many sprouts form from the cut ends of topped or storm-damaged trees. Some sprouts also develop behind the cuts. All are poorly attached to the tree—at least for several years—and can break easily. Notice the eight sprouts that developed from the damaged branch. There are too many sprouts too close together.

After restoration



Solution: Begin by removing dead stubs (see arrow), removing some sprouts completely, and shortening others using reduction cuts (indicated by dotted lines). This procedure helps rebuild structure by spacing unpruned sprouts apart so that they can develop into branches. The shortened branches help protect the sprouts that remain.

Figure 9. Restoration attempts to improve structure by removing or reducing sprouts.

Severe heading (topping) through older tissue may kill or start a decline syndrome on some tree species. Table 3 lists several trees that can tolerate pollarding.

Heading cuts are made at strategic locations so that the sprouts from all cuts have access to sunlight. After the initial cuts are made, no additional heading cuts should be necessary. After a few pruning cycles, pollard heads (also called knuckles or knobs) develop, and the tree produces sprouts from these knuckles. Sprouts that grow from knuckles should be removed during the dormant season, taking care not to cut into or below the knobs. The knobs are the key differentiating factor between pollarding and topping. If knobs are damaged or removed in subsequent pruning, the branches react as they would on a topped tree.

Pruning Palms

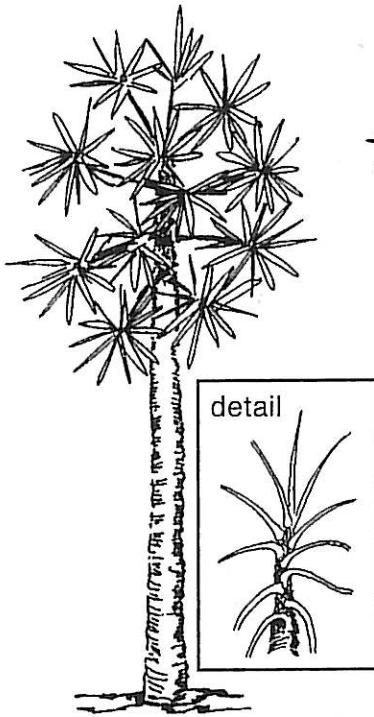
Palm pruning is the removal of fronds, flowers, fruit, stems, or loose petioles that may create a hazardous condition. Palms also may be pruned for aesthetic reasons to eliminate sprouts and stems or dead fronds and seedpods. Live, healthy fronds should not be removed. If they must be removed, however, avoid removing those that initiate above horizontal (Figure 10). Fronds removed should be severed close to the petiole base without damaging living trunk tissue. Climbing spikes should not be used to climb palms for pruning.

Pruning Conifers

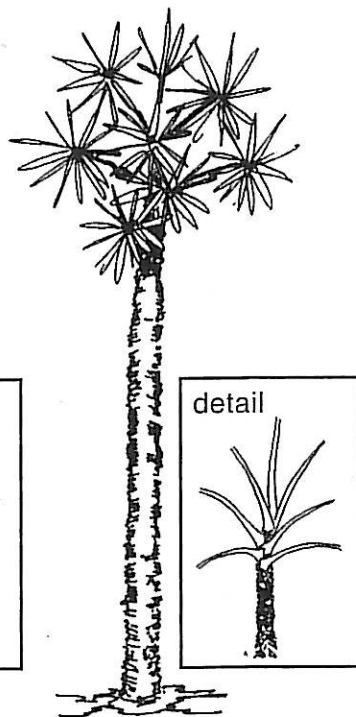
Some pruning types are not appropriate for all conifers. For example, branch spacing and scaffold limb development in conifers usually are not necessary. Thinning on spruces and firs rarely is needed, although in windy area thinning (spiral thinning) could reduce wind resistance and therefore tree failures. Pine growth may be managed by shortening new growth (candles) and removing older needles rather than branch removal. Few conifers respond well to pollarding or reduction.

Palm Pruning

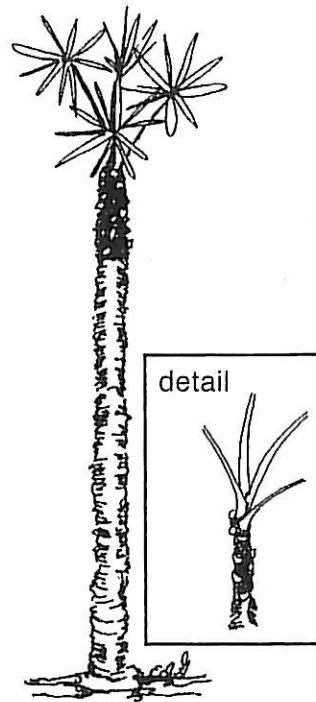
Before pruning



Proper pruning



Overpruning



Consider treating nutrient deficiencies along with pruning. Pruning nutrient-deficient palms could cause symptoms to appear in remaining foliage. Remove lower fronds that are chlorotic or dead. There is no biological reason to remove live green fronds on palms. Removing live green fronds is not known to reduce future pruning requirements.

Remove lower fronds that are dead or more than about half chlorotic. It is best for the palm if green fronds remain intact. (If you decide to remove green fronds, the ANSI A300 pruning standard advises never to remove those growing above horizontal.)

Overpruned palms look terrible, have slow growth, and can attract pests. In the detail above, you can see that many upright fronds were removed. Green fronds are almost always removed during this overpruning.

Figure 10. Palm pruning primarily removes dead or chlorotic fronds.

Branch Attachment

When branches remain small relative to the trunk diameter, a swollen collar often develops around the base of the branch. The collar is formed by overlapping and deflected branch and trunk wood (Figure 11). The overlapping wood makes a union strong. Inside the collar on most trees is a unique chemical barrier called the branch protection zone (Figure 11). Its function is to retard the spread of decay organisms into the trunk. If the collar is removed or severely damaged, decay can more easily enter trunk wood and lead to defects.

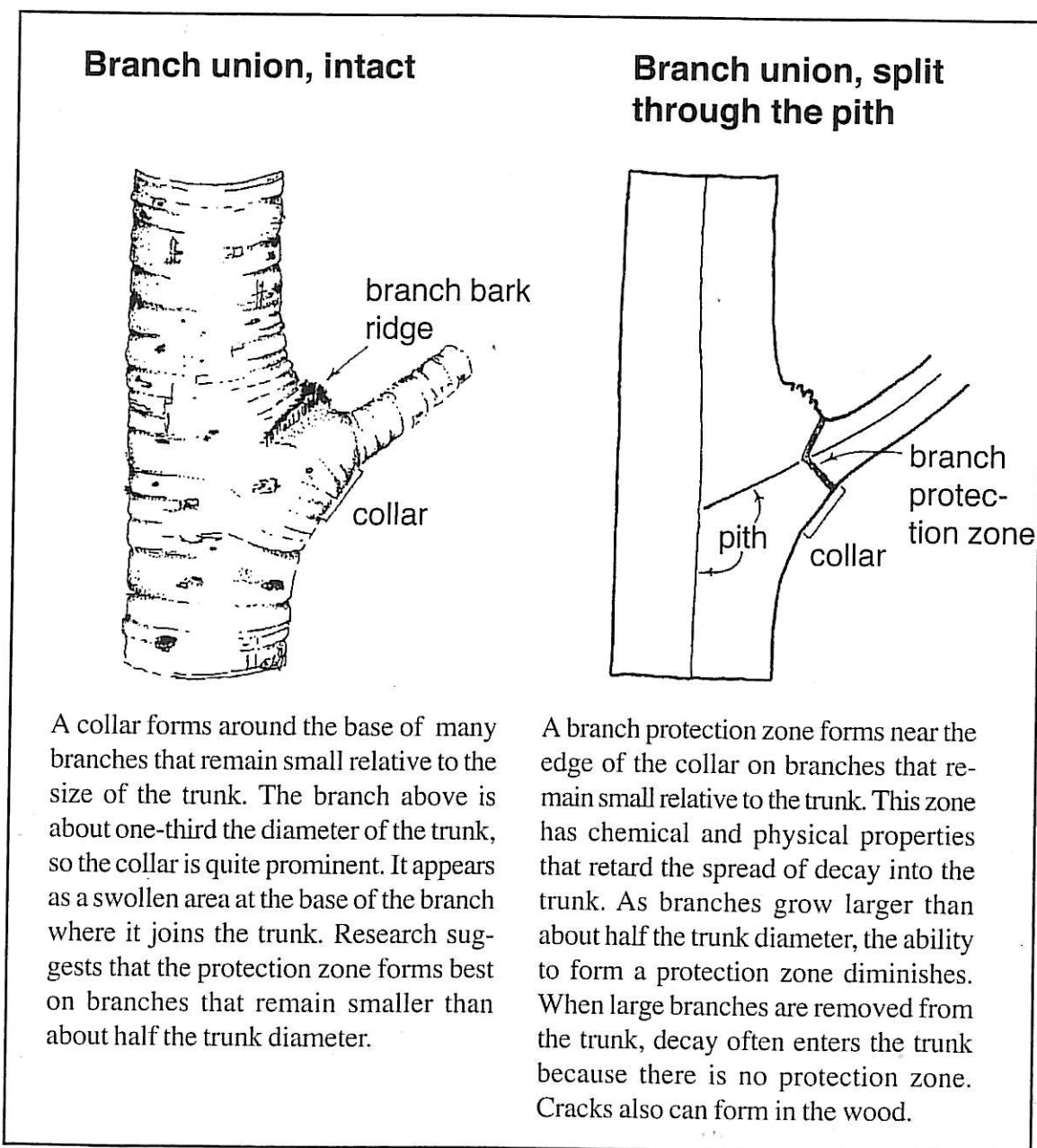


Figure 11. A collar containing a branch protection zone forms when branches remain small compared to the trunk.

When two stems of approximately equal size (codominant stems, diameter ratios greater than 80 percent) arise from a union, there is little overlapping wood (Figure 12). The result is a weaker union. Decay can enter when one stem is removed because there is no branch protection zone at the base of a codominant stem. The union is even weaker when included bark is part of the condition. Included bark becomes trapped and embedded inside the union as the two stems grow and develop. This condition weakens the union, making the tree prone to failure at that point. There is no traditionally shaped branch bark ridge at the top of the union when included bark is present (Figure 13). Branches and stems with included bark should be removed or shortened on young trees. Removal on large trees may not be a good option because of the potential for decay. Reducing the stem's length or installing a structural support system (see *Best Management Practices: Tree Support Systems*) can minimize the likelihood of the limb failure.

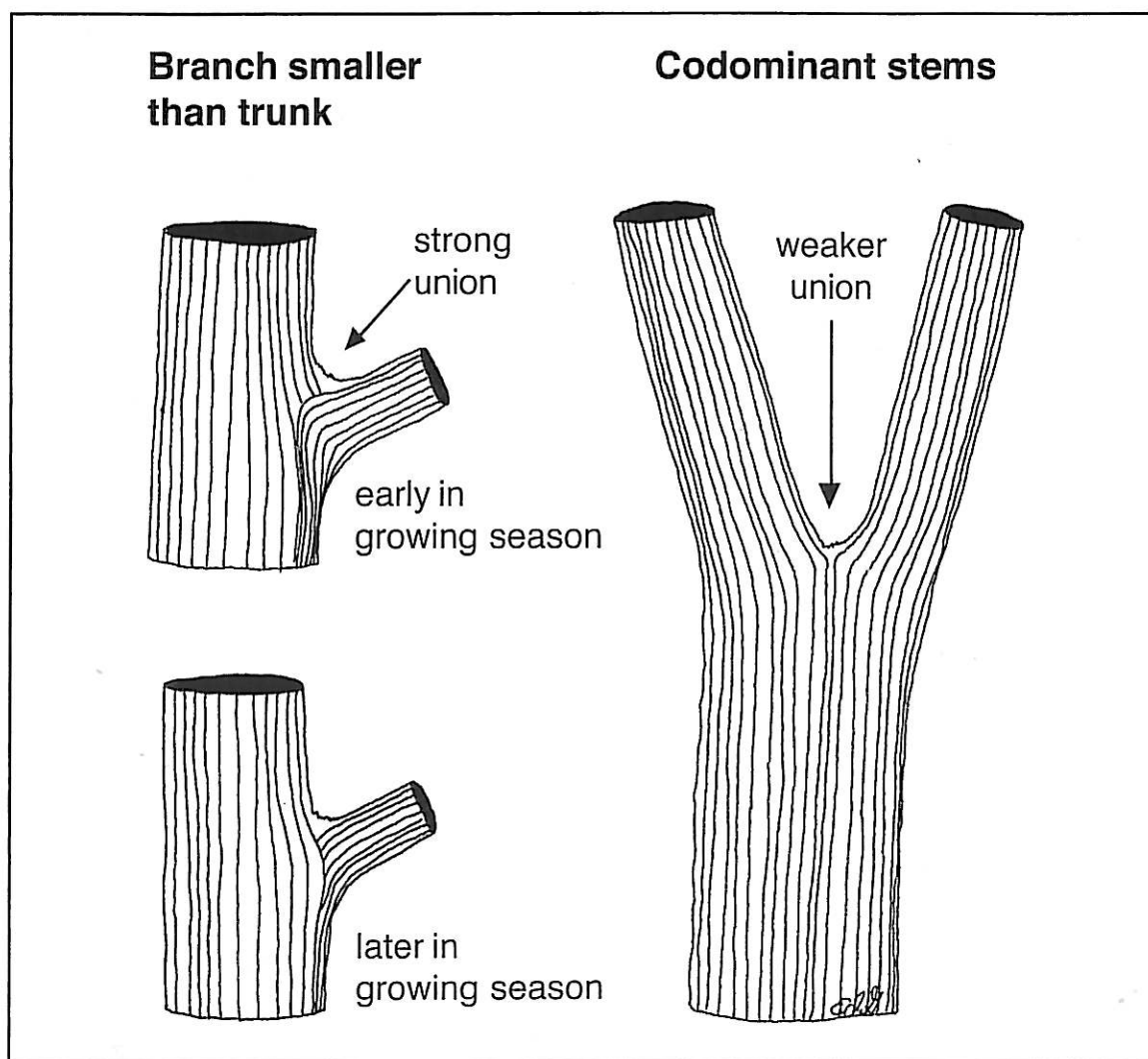
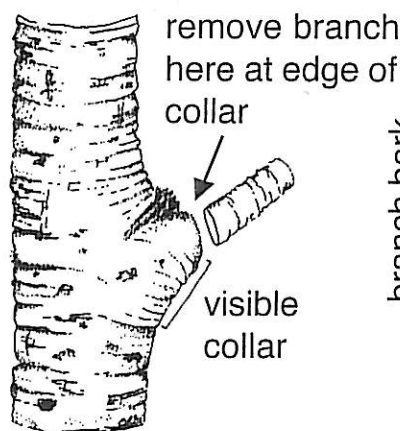


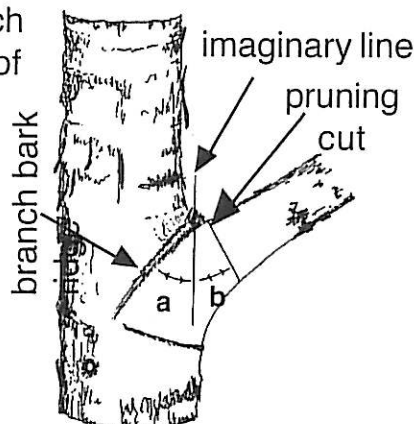
Figure 12. Small branches are well connected to the trunk as a result of overlapping trunk and branch tissue in the union (left). Codominant stems are not as well connected because wood tissue does not overlap in the union (right).

Visible collar



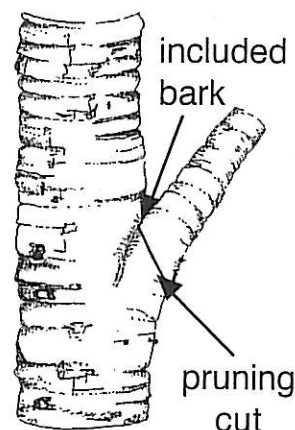
Make the pruning cut just outside the edge of the visible collar. The collar is the swollen area at the base of the branch. If you make the cut here, the branch protection zone remains intact, and decay usually is excluded from the trunk. If the cut is made closer to the trunk, the protection zone is removed, and decay and cracks could occur in the trunk. Do not leave a stub beyond the collar. Leaving a stub could result in the spread of decay into the trunk.

No visible collar



Without a visible collar, construct an imaginary line parallel with the trunk. Estimate angle *a* between the branch bark ridge and the imaginary line. Angle *b* should be greater than or equal to angle *a*. Make your pruning cut where the top of the branch makes an abrupt turn (see pruning cut arrow) into the union. Another guideline is to make the cut to minimize the size of the pruning wound—that is, cut perpendicular to the top of the branch.

No collar and included bark



To remove a branch with included bark and no visible collar, cut through the branch as far down into the union as possible without cutting into the trunk. Never cut below the point where the exposed included bark crack ends. Be careful not to injure trunk tissue when making the cut. If doing so is difficult because of the large size of the branch or the shape of the union, cut farther out on the branch than indicated here.

Figure 13. Removing branches from trunks or from parent branches.

Pruning Cuts

Three general types of cuts are used in arboricultural pruning: branch removal cut (thinning cut), reduction cut, and heading cut. Removal cuts are preferred because they leave the branch protection zone intact.

Branch Removal Cut (Thinning Cut)

When removing a branch at its point of origin on a trunk, stem, or larger branch, make the cut as close to the trunk as possible without cutting into the branch bark ridge or branch collar and without leaving a stub (Figure 13). The cut should leave a smooth surface with no jagged edges or torn bark. If there is no collar, the top of the cut should be located where the top of the branch makes an abrupt upward turn into the union. The correct position varies among trees and branches. Pruning here most closely simulates where branches are shed naturally. The bottom of the cut can be located according to Figure 13. Except on large limbs, the branch protection zone allows for compartmentalization of the wound. If there is a bark inclusion in the union, cut as far down into the union as possible without injuring trunk wood.

Large or heavy branches should be removed using three cuts. The first one undercuts the limb 1 to 2 feet (0.3 to 0.6 m) out from the parent branch or trunk. The undercut reduces the chance of the branch “peeling” or tearing bark as it is removed. The second cut is the top cut, which on small branches should be made directly above the undercut or slightly farther out on the limb than the undercut. The third and final cut is to remove the stub carefully without tearing bark below the cut.

With large trees, branches often need to be lowered rather than dropped to the ground to reduce damage to the tree and objects below the tree. This procedure is done with ropes, cranes, or other equipment. Details on these procedures can be found in *The Art and Science of Practical Rigging* (DVDs and accompanying book published by the International Society of Arboriculture).

When removing a dead branch, the final cut should be made just outside the collar of living tissue (Figure 14). If the collar has grown along a dead branch stub, only the dead stub should be removed. The collar contains live tissue and should not be injured or removed.

Reduction Cut (Cutting to a Lateral, Lateral Cut, Drop-Crotch Cut)

A reduction cut shortens a limb or branch back to a smaller lateral branch or similarly sized limb (Figure 15). Reduction cuts commonly are used in

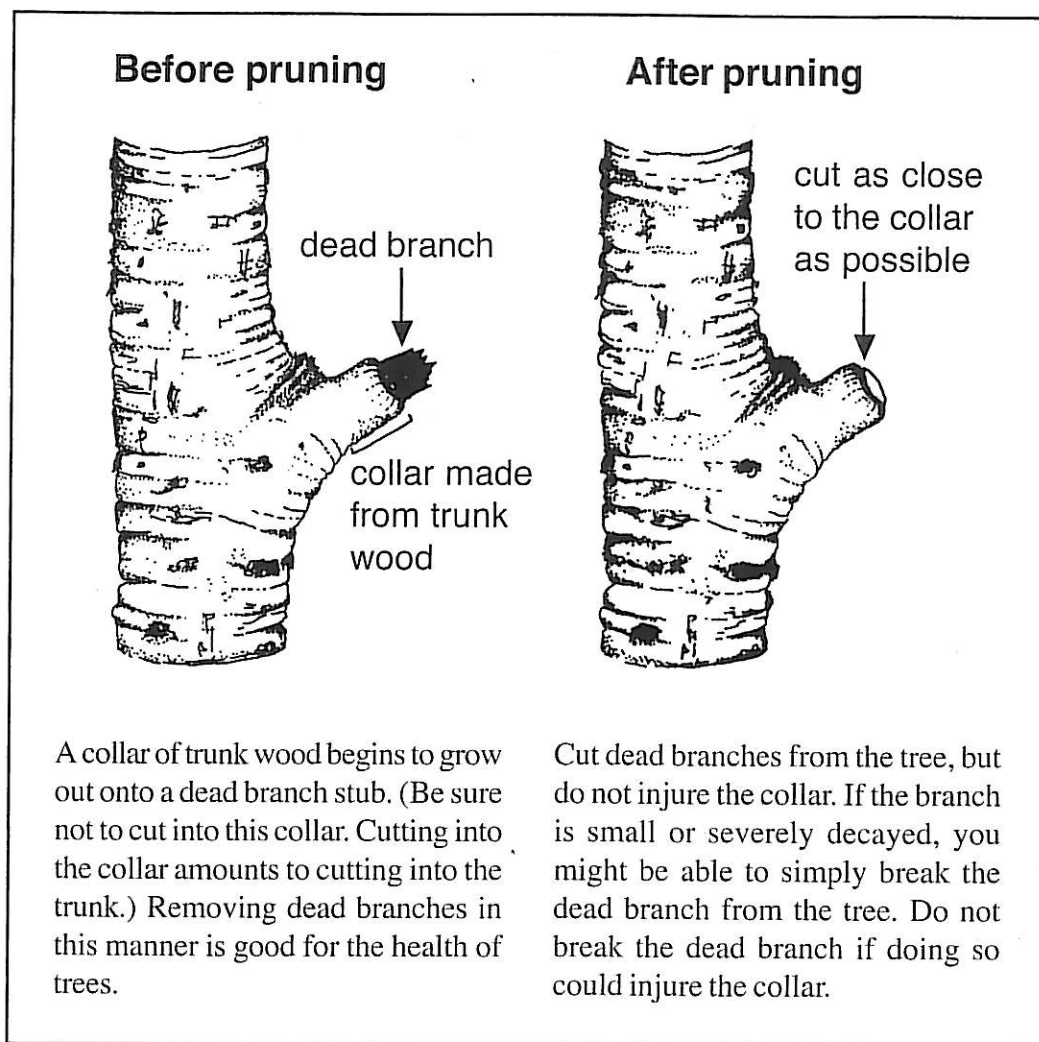


Figure 14. Removing a dead branch should not remove the swollen collar.

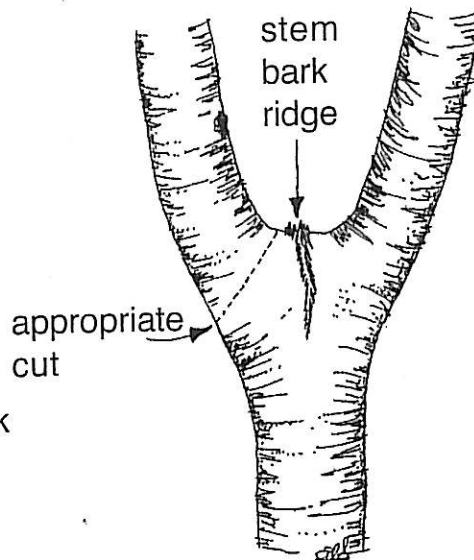
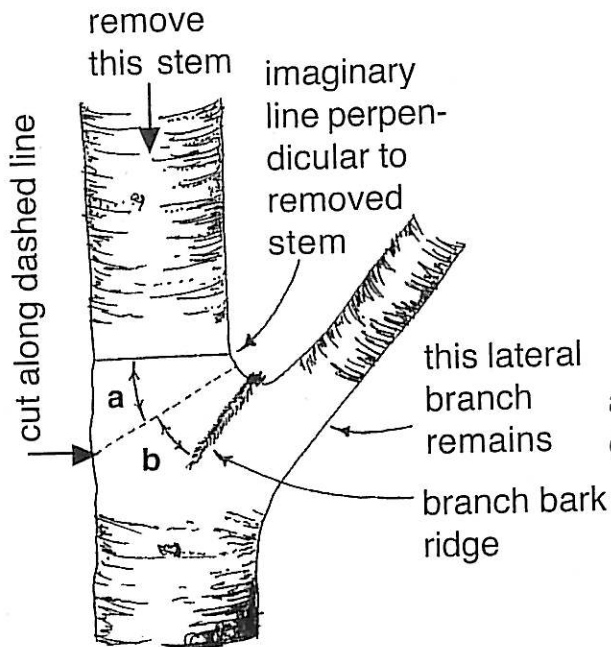
structural pruning or when reducing tree size. A stem is cut back to a lateral capable of sustaining the remaining limb and assuming the terminal role. A common rule of thumb is that the remaining lateral branch should be at least one-third to one-half the diameter of the removed portion. At such a size, the lateral branch should be able to produce enough energy to keep the parent branch alive, and enough growth regulator should be present to suppress excessive sprouting on many species. This rule varies with tree species, age, and condition, and with climate. Old, stressed, or mature trees could decline or become more stressed if too much foliage is removed.

When possible, avoid large reduction cuts (more than 2 inches [5 cm] diameter) on permanent scaffold limbs. Avoiding large cuts is less important on limbs that will be removed from the tree later. On permanent branches, it also is important to consider the ability of the lateral branch to sustain the limb. Cutting back to

Reduction Cuts

Removed stem larger than branch

Stems of equal size



Determining where to make an appropriate reduction cut: Draw an imaginary line perpendicular to the stem to be removed, as shown. Bisect the angle between this line and the branch bark ridge so that angle *a* equals angle *b*. Cut along this bisect line (shown as a dashed line) to just outside of the branch bark ridge.

Determining where to make an appropriate reduction cut: Begin the cut just beyond the edge of the stem bark ridge. Cut at an angle to minimize the size of the exposed pruning wound. This location is approximately along the dashed line. There is no natural boundary to resist decay inside the cut stem from reduction cuts.

A reduction cut removes a stem or branch back to a lateral branch or stem that is large enough to assume the terminal role. Typically, this lateral branch should be at least one-third the diameter of the removed portion. If the lateral branch that remains is less than one-third the diameter of the removed stem, then the cut is considered a heading cut. A heading cut is considered inappropriate on most landscape trees. A reduction cut may cause some decay behind the cut. The extent of decay depends on the diameter of the cut and the tree species. Larger-diameter cuts (greater than about 2 to 3 inches [5 to 7.6 cm]) are likely to cause more decay than smaller cuts.

Figure 15. A reduction cut shortens a stem back to a lateral branch.

a lateral that is insufficient in size is much like making a topping or heading cut. Pruning cuts to reduce the length of a limb should bisect the angle between the branch bark ridge and an imaginary line perpendicular to the branch or stem being removed (Figure 15). Cutting *toward* the branch bark ridge reduces the risk of the union splitting out.

Trees do not compartmentalize this type of wound as well as the wound created following a removal cut. The ability of the tree to compartmentalize the wound is a function of the size of the cut, the age of the cut stem or branch, tree vigor or vitality, species, and perhaps the time of year. The smaller the cut and the more vigorous the tree, the better the wound closure and compartmentalization.

Heading Cut

A heading cut (topping cut, lopping cut) is made between branches. This type of cut leaves a stub. These cuts rarely are appropriate on established trees. They can, however, be used on current season's growth to remove old flower heads and developing fruit or to reduce the length of a branch or sprout to improve appearance. Heading cuts are used in the first year of pollarding. Heading should not be used to reduce the height or size of trees in other instances. This practice is called topping and is extremely damaging to shade trees. Shearing (or rounding-over) large-maturing trees also is inappropriate because it causes a profusion of sprouts that grow rapidly into a dense mass of foliage. This practice spoils good tree architecture and can significantly increase maintenance requirements. Shearing is appropriate and commonly practiced on shrubs to maintain size.

Wound Dressing

Wound dressings are treatments applied to pruning cuts or other tree wounds. Traditionally, they were formulated with asphalt-based products in paint or spray form. Wound dressings once were thought to accelerate wound closure and reduce decay. Research shows that these products do not reduce the spread of decay. However, studies have shown beneficial effects of wound dressings in reducing borer attack and oak wilt infection and controlling sprout production and mistletoe. Wound dressings are used primarily for cosmetic purposes, and neither are required nor recommended in most cases. If a dressing must be applied, only a light coating of a nonphytotoxic material should be used.

How Much to Prune

Energy reserves (starch, sugars, and oils) are stored in branches, stems, trunk, and roots. This energy can be preserved by removing the fewest number of live branches necessary to accomplish the desired objective. Excessive branch removal depletes these reserves and reduces the ability of the tree to photosynthesize more energy. There should be a good reason to remove more than 25 percent of the live crown in a single year. Many trees generate adventitious sprouts in response to overpruning as they attempt to replace the stored energy. Live branch pruning, however, is an essential ingredient to forming good structure, so it is a necessary procedure in an urban tree care program.

When to Prune

The best time to prune live branches depends on the desired results. Removal of dying, diseased, broken, rubbing, or dead limbs can be accomplished any time, with little negative effect on the tree.

Growth is maximized and defects are easier to see on deciduous trees if live-branch pruning is done in the winter or before growth resumes in early spring. Pruning when trees are dormant can minimize the risk of pest problems associated with wounding and allows trees to take advantage of the full growing season to close and compartmentalize wounds. Trees with Dutch elm disease should have diseased branches removed as soon as a branch shows flagging.

The timing of pruning can be an important part of a Plant Health Care program. For example, one of the ways to reduce the spread of oak wilt or Dutch elm disease fungus is to prune during the dormant season and avoid pruning susceptible species during the time of the vector beetle flight in areas where disease is a problem.

Plant growth rate can be reduced if live-branch pruning takes place during or soon after the initial growth flush. This is the period when trees have just expended a great deal of stored energy to produce roots, foliage, and early shoot growth, so pruning at this time usually is not recommended because of the potential stresses. Do not prune live branches from stressed trees at this time because they need all their live foliage to help recover.

Flowering can be prevented or enhanced by pruning at the appropriate time of the year. To retain the most flowers on landscape trees that bloom on current season's growth, such as crapemyrtle (*Lagerstroemia* spp.) or linden (*Tilia* spp.), prune these trees in winter, prior to leaf emergence, or in the summer just after bloom. Plants that bloom on last season's wood, such as crabapples (*Malus* spp.) and cherries (*Prunus* spp.), should be pruned just after bloom in order to preserve the flower display. Fruit trees can be pruned during the dormant season to enhance structure and distribute fruiting wood, and they are pruned after bloom to thin fruit.

Certain species of trees, such as maples (*Acer* spp.) and birches (*Betula* spp.), drip sap (bleed) when pruned in the early spring when sap flow is heavy (Table 4). Although unattractive, sap drainage has little negative effect on tree growth or health. Some of the sap dripping can be avoided by pruning in summer or at other times of the year.

Table 4. Trees that often drip sap (bleed) when pruned in late winter or early spring.

Avocado (*Persea americana*)
Birch (*Betula* spp.)
Cottonwood (*Populus* spp.)
Elm (*Ulmus* spp.)
Flowering dogwood (*Cornus florida*)
Hackberry (*Celtis* spp.)
Honeylocust (*Gleditsia triacanthos*)
Magnolia (*Magnolia* spp.)
Maple (*Acer* spp.)
Mesquite (*Prosopis* spp.)
Poplar (*Populus* spp.)
Silk-oak (*Grevillea robusta*)
Walnut (*Juglans* spp.)
Willow (*Salix* spp.)

Tools

Pruning tools adequate for the size of cuts being made should be selected. Tools should be sharp so as to make clean cuts without jagged edges or stubs. Dull, anvil-type pruning tools, with a blade that cuts to a flat surface, should be avoided because they crush tissue; tools with bypass (scissors-type) blades are preferred. Place the blade side of the pruner toward the tree and squeeze the blade *up* through or *across* the branch. Passing the blade *down* through the branch can cause the union to split.

Equipment and work practices that damage living tissue and bark beyond the scope of the work should be avoided. Climbing spurs are not to be used to climb trees for pruning operations except when limbs are more than a throwline distance apart and there are no other means of climbing the tree, when the bark is thick enough to prevent damage to the cork cambium (for example, on thick-barked species such as mature redwoods), to reach an injured worker, or when removing the entire tree.

Although probably a rare occurrence, the probability of spreading pathogens on pruning tools varies with the particular disease, the plant, the pruning tools used, the environmental conditions, and the timing. Chain saws are difficult, if not impossible, to sterilize during pruning operations. If tools are sterilized, it is important to use a material that will not injure plant tissues or damage tools. Materials commonly used to sterilize tools include bleach (10 percent solution), Lysol, and automotive antifreeze.

Pruning Specifications

Written specifications are the core of executing good pruning. Without good specifications, each arborist bidding on a pruning job bids on the work he or she thinks should be done, and this decision could vary widely among arborists. Municipalities, condominium and home owner associations, and commercial property managers may benefit most from using specifications. Commercial tree care companies should use ANSI A300 terms when writing pruning specifications on their work orders.

Specifications should include objectives of the pruning, pruning types to be used, size range of branches to remove, percentage of live crown to remove, and location of branches (Table 5). The specifications should state that all work shall be performed according to the ANSI A300 pruning standard and the ANSI Z133.1 safety standard.

Table 5. Minimum pruning specification requirements.

-
- Clearly state which trees are to be pruned.
 - Include a statement that all work shall be performed in accordance with the ANSI A300 pruning standard and the ANSI Z133.1 safety standard.
 - Include clearly defined pruning objectives.
 - Specify the pruning types to be performed to meet the objectives.
 - State the size specifications of the minimum and/or maximum branch size to be removed.
 - Specify the maximum amount (expressed as a percentage) of live tissue that can be removed.
-

Example 1

Specification example to include in a request for bids for pruning medium-aged and mature trees

(The following is only an example and should not be used as is. Develop specifications based on your needs, the objectives of the customer, and the condition and size of the trees to be pruned.)

“Shall” refers to a practice that is mandatory; “should” refers to a practice that is recommended. If a “should” recommendation will not be followed, a written explanation must be provided.

Objectives

Twenty-seven oak trees along Sweetwater Lane from 1600 block to 1800 block shall be pruned to improve structure and reduce the risk of limb failure by

1. cleaning the entire crown of each tree by removing all undesirable branches greater than 1-inch (2.5 cm) diameter.
2. reducing the length of long, horizontal branches by about 5 feet (1.5 m).
3. reducing the length of branches or stems with included bark by 5 to 10 feet (1.5 to 3 m).
4. reducing or thinning by 20 percent any limbs that require cabling.

Procedures

1. Live branches less than 1-inch (2.5 cm) diameter should not be removed from the interior of the crown (some branches may need to be removed to allow the arborist to enter and work in the trees). No live branches greater than 4-inch (10 cm) diameter shall be removed from the tree without authorization from owner or owner's agent.
2. Dead, diseased, or broken branches greater than 1-inch (2.5 cm) diameter (measured at the base of the branch) shall be removed from the canopy of all trees.
3. No more than 20 percent of live foliage shall be removed from any tree.
4. Swollen collars, even if they are quite large, shall remain on the tree following removal of dead branches.
5. Pruning cuts shall be in accordance with ANSI A300 pruning standard, and work shall be performed in accordance with the ANSI Z133.1 safety standard. Pruning shall be in accordance with ISA's *Best Management Practices: Tree Pruning*.

Personnel Qualifications

All work should be performed under the supervision of an ISA Certified Arborist or state licensed arborist.

Example 2

Sample work order for residential tree work

(The following is only an example and should not be used as is. Develop work orders based on your needs, the desires and objectives of the customer, and the condition and size of the trees to be pruned.)

“Shall” refers to a practice that is mandatory; “should” refers to a practice that is recommended. If a “should” recommendation will not be followed, a written explanation must be provided.

Pruning Types to Execute on This Job (Check All That Apply)

☐ structural ☐ clean ☐ thin ☐ raise ☐ reduce ☐ restore

Objectives and Procedures

1. Reduce potential for failure in large, front-yard white oak (*Quercus alba*) by
 - cleaning (1-inch [2.5 cm] diameter and larger).
 - removing north limb (8-inch [20 cm] diameter) with split crotch and included bark.
2. Raise 12-inch (30 cm) green ash (*Fraxinus pennsylvanica*) in rear to allow under-clearance of 8 feet (2.5 m).
3. Clean (branches greater than 1-inch [2.5 cm] diameter) and thin (remove branches between 1/2- and 1-inch [1.2 to 2.5 cm] diameter only) maple by vegetable garden to allow greater sunlight penetration.

General

No live branches greater than 5-inch (12.5 cm) diameter shall be removed from the tree without authorization from the home owner. No more than 20 percent of live foliage will be removed from the tree. Pruning cuts shall be in accordance with ANSI A300 pruning standard, and work shall be performed in accordance with the ANSI Z133.1 operations standard. Pruning shall be in accordance with ISA's *Best Management Practices: Tree Pruning*.

Glossary

ANSI A300—In the United States, industry-developed, national consensus standards of practice for tree care.

ANSI Z133.1—In the United States, industry-developed, national consensus safety standards of practice for tree care.

arboriculture—Practice and study of the care of trees and other woody plants in the landscape.

arborist—Professional who possesses the technical competence gained through experience and related training to provide for or supervise the management of trees and other woody plants in residential, commercial, and public landscapes.

bark inclusion—See included bark.

best management practices—Best-available, industry-recognized courses of action, in consideration of the benefits and limitations, based on scientific research and current knowledge.

branch—A stem arising from a larger stem; a subdominant stem; the pith in true branches has no connection to the parent stem.

branch bark ridge—Raised strip of bark at the top of a branch union, where the growth and expansion of the trunk or parent stem and adjoining branch push the bark into a ridge.

branch collar—Area where a branch joins another branch or trunk that is created by the overlapping vascular tissues from both the branch and the trunk. Typically enlarged at the base of the branch.

branch protection zone—Chemically and physically modified tissue within the trunk or parent branch at the base of a smaller, subordinate branch that retards the spread of discoloration and decay from the subordinate stem into the trunk or parent branch.

cambium—Thin layer(s) of meristematic cells that give rise (outward) to the phloem and (inward) to the xylem, increasing stem and root diameter.

cleaning—Selective pruning to remove dead, diseased, cracked, and broken branches and foreign objects.

climbing spurs—Sharp devices strapped to a climber's lower legs to assist in climbing poles or trees being removed. Also called spikes, gaffs, irons, hooks, or climbers.

closure—The process in a woody plant by which woundwood grows over a pruning cut or injury.

codominant stem—Forked branches nearly the same diameter (diameter ratios > 80 percent), arising from a common junction and lacking a normal branch union.

compartmentalization—Natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms.

crown—Upper part of a tree, measured from the lowest branch, including all the branches and foliage.

decay—(1) (*noun*) An area of wood that is undergoing decomposition. (2) (*verb*) decomposition of organic tissues by fungi or bacteria.

dominant leader/trunk/stem—The stem that grows much larger than all other stems and branches.

frond—Large, divided leaf structure found in palms and ferns.

good structure/architecture/form—Branch and trunk architecture resulting in a canopy form that resists failure.

heading—Cutting a shoot back to a bud or cutting branches back to buds, stubs, or lateral branches not large enough to assume apical dominance. Cutting an older branch or stem back to a stub in order to meet a structural objective.

included bark—Bark that becomes embedded in a crotch (union) between branch and trunk or between codominant stems. Causes a weak structure.

interior foliage—Typically small-diameter (less than 3 inches [7.6 cm]) branches with foliage on the interior or inner portion of the crown.

kerf—Slit or cut made by a saw in a log. Space created by a saw cut.

lateral—A branch arising from a larger stem or branch.

leader—Primary terminal shoot or trunk of a tree. Large, usually upright stem. A stem that dominates a portion of the crown by suppressing lateral branches.

lion tailing—Poor pruning practice in which an excessive number of branches are thinned from the inside and lower part of specific limbs or a tree crown, leaving mostly terminal foliage. Results in poor branch taper, poor wind load distribution, and a higher risk of branch failure.

live crown ratio—The ratio of the height of the crown containing live foliage to the overall height of the tree.

mature trees—Trees that have reached at least 75 percent of their typical final height and spread.

method—A procedure or process for achieving an objective.

parent branch or stem—A tree trunk or branch from which other branches or shoots grow.

peeling—The removal of dead frond bases without damaging living trunk tissue at the point they make contact with the trunk.

petiole—Stalk or support axis of a leaf.

permanent branches (permanent limbs)—In structural pruning of young trees, branches that will be left in place, often forming the initial scaffold framework of a tree.

photosynthesis—Process in green plants (and in algae and some bacteria) by which light energy is used to form glucose (chemical energy) from water and carbon dioxide.

phytotoxic—Term to describe a compound that is poisonous to plants.

pollarding—Specialty pruning technique in which a tree with a large-maturing form is kept relatively short. Starting on a young tree, internodal cuts are made at a chosen height, resulting in the development of callus knobs at the cut height. Requires regular (usually annual) removal of the sprouts arising from the cuts.

pruning—Removing branches (or occasionally roots) from a tree or other plant using approved practices, to achieve a specified objective.

raising—Selective pruning to provide vertical clearance; also known as lifting.

reaction zone—Natural boundary formed chemically within a tree to separate damaged wood from existing healthy wood. Important in the process of compartmentalization.

reducing—Pruning to decrease height or spread on entire tree or one section; also referred to as reduction or reduction pruning.

reduction cut (drop-crotch cut, lateral cut)—Pruning cut that reduces the length of a branch or stem back to a lateral branch large enough to assume apical dominance—typically at least one-third of the diameter of the cut stem.

removal cut (thinning cut)—Cut that removes a branch at its point of origin. Collar cut.

restoring—The process of pruning to improve the structure, form, and appearance of trees that have been improperly trimmed, vandalized, or damaged.

scaffold limb—A limb or branch that is among the largest diameter on the tree and will remain on the tree perhaps to maturity.

shoot—New stem or branch growth on a plant.

specifications—Detailed plans, requirements, and statements of particular procedures and/or standards used to define and guide work.

stem—Woody structure bearing foliage and buds that gives rise to other stems (branches).

starch—Chain of sugar molecules linked together that serves as a form of energy storage in plants.

structural pruning—Pruning to establish a strong arrangement or system of scaffold branches.

stub—Portion of a branch or stem remaining after a stub cut, branch breakage, or branch death.

subordination—Pruning to reduce the size and ensuing growth of a branch in relation to other branches or leaders.

sucker—Shoot arising from the roots. Contrast with *watersprout*.

thinning—In pruning, the selective removal of live branches to provide light or air penetration through the tree or to lighten the weight of the remaining branches.

throwline—Thin, lightweight cord attached to a throwbag or throwing ball used to set climbing or rigging lines in trees.

topping—Inappropriate pruning technique to reduce tree size. Cutting back a tree to a predetermined crown limit, often at internodes.

trunk—Stem of a tree.

union (crotch)—The junction between stem and branch or between stems.

watersprouts—Upright, epicormic shoots arising from the trunk or branches of a plant above the root graft or soil line. Incorrectly called a sucker. Contrast with *sucker*.

wound—An opening that is created when the bark of a live branch or stem is cut, penetrated, damaged, or removed.

wound dressing—Compound applied to tree wounds or pruning cuts.

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ORDINANCE COMMITTEE DRAFT 04-21-09
SHOWING CHANGES FROM EXISTING CODE

INCLUDING RECOMMENDATIONS FROM STREET TREE ADVISORY COMMITTEE
AND THE PARKS AND RECREATION COMMISSION

AN ORDINANCE OF THE COUNCIL OF
THE CITY OF SANTA BARBARA
AMENDING CHAPTERS 15.20 AND
15.24 OF THE SANTA BARBARA
MUNICIPAL CODE RELATING TO THE
PRESERVATION AND MANAGEMENT
OF TREES

THE COUNCIL OF THE CITY OF SANTA BARBARA DOES ORDAIN AS
FOLLOWS:

SECTION ONE. Chapter 15.20 of Title 15 of the Santa Barbara Municipal Code
is amended to read as follows:

15.20.010 Title.

Recognizing that the urban forest is a valuable asset to the City of Santa Barbara,
this chapter shall be known as and may be cited and referred to as the "Street Tree
Ordinance of the City of Santa Barbara."

15.20.020 Definitions.

For the purpose of this chapter, certain terms and words are hereby defined as
follows:

A. DIRECTOR. The person having control and management of the Parks and
Recreation Department of the City or the Director's designated representative.

B. GROUND COVER. Includes grass, turf or perennial plants that normally grow in a prostrate manner so as to conceal, or with the purpose of concealing, the ground surface, and that do not exceed eight inches in height, and that will tolerate light pedestrian traffic.

C. HISTORIC TREE. A tree which has been found by the Board of Park Commissioners, the Historic Landmarks Commission, or the City Council to be a tree of notable historic interest and has been designated by resolution of the City Council as an "historic tree".

D. MAINTENANCE or MAINTAIN. Pruning, spraying, bracing, root pruning, staking, fertilizing, watering, treating for disease or injury, and other work performed to promote the health, beauty, or adaptability of trees and shrubs, but shall not include the watering of such trees in residential zones.

E. OFFICIAL TREE. A tree so designated by the Director because of its desirable characteristics of growth and beauty with reference to its crown, root structure, and adaptability to local climatic, soil and street conditions. The Director shall keep a list of official trees.

F. PARKWAY STRIP. Either (i) the area between the curb and sidewalk within a fully improved street right-of-way, or (ii) that area extending six feet from the curb towards the nearest right-of-way line in an area with no sidewalk, or (iii) any area within a street right-of-way in which an official or parkway tree is located.

G. PARKWAY TREE. A tree planted or caused to be planted by the City within a street right-of-way.

H. PUBLIC AREA. Parks, playgrounds, areas around public buildings and all other

areas under the supervision and maintenance of the City not including any street right-of-way.

I. SHRUB. Woody vegetation or a woody plant having multiple stems and bearing foliage from the ground level up.

J. SPECIMEN TREE. A tree which has been found by the Board of Park Commissioners to be of high value because of its type and/or age and which has been so designated by resolution of the City Council as a “specimen tree”.

K. STREET. Shall have the meaning set forth in section 28.04.665 of this Code.

L. TREE. A usually tall, woody plant, distinguished from a shrub by having comparatively greater height and, characteristically, a single trunk rather than several stems.

M. TREE WELL. A planting area found in an otherwise paved street right-of-way.

15.20.030 Master Street Tree Plan.

All trees within a parkway strip shall be planted and maintained according to the Master Street Tree Plan adopted by the City Council. The Director shall administer the Master Street Tree Plan and, with the approval of the Board of Park Commissioners, shall have the authority to amend or add to the Master Street Tree Plan at any time that circumstances make such amendment or addition advisable.

15.20.040 Other Plantings or Improvements in Parkway Strips.

It is unlawful to install or plant in a Parkway Strip any of the following without a written permit: (i) any tree not designated an official tree in the Master Street Tree Plan; (ii) any other plant whose ultimate growing height is over eight inches; (iii) any other non-living ground cover, ~~without a written permit from the Director.~~

The Parks and Recreation Department shall maintain a list of plant materials which comply with the height requirements of this Title.

15.20.050 Director Authority and Responsibility.

The Director is hereby made responsible for inspection, maintenance, removal and replacement of all trees planted in public areas, parkway strips, and tree wells.

The Director shall have authority to remove or replace any tree or other planted improvements within a parkway strip which does not conform to the "Master Street Tree Plan" or this Title.

15.20.060 Development Activity - Tree Plans.

The applicant for any activity for which approval by the Architectural Board of Review, the Historic Landmarks Commission, the Single Family Design Board, or the Planning Commission is required by City law shall, concurrently with processing of such application, submit to the Director and the appropriate review body plans for the planting of official trees within any parkway strip on or adjacent to the lot, parcel or building site. The Director may designate the species, kind, number, spacing, and method of planting of such trees and may require the inclusion of root inhibiting planters.

15.20.070 New Subdivisions - Conformity with Master Street Tree Plan.

No subdivision shall be approved unless it is found to include planting of official trees within the parkway strips in conformity with the "Master Street Tree Plan" and under the Director's supervision. Any such approval shall assure that the costs of planting and first two years maintenance, including irrigation, for all official trees are borne by the subdivider. ~~Posting of a faithful performance bond may be accepted by the Director as a means of complying with this requirement.~~

The Director may require the posting of a performance bond to secure faithful performance of the planting, maintenance, and irrigation obligations in a manner consistent with the security provisions of the state Subdivision Map Act (Government Code section 66499 et seq.).

15.20.080 Street Improvements - Integration of Plans.

Any proposed change in the direction or width of a public street right-of-way or any proposed street improvement shall, where feasible, incorporate plans for installation of parkway strips. Plans and specifications for planting such areas shall be integrated into the general plan of improvements and it shall be the duty of the City Engineer to coordinate the design of such improvements with the Parks and Recreation Department prior to completion of final overall plans.

In order to provide for coordinating the multiple use of all street improvements, plans and specifications for street planting proposed by the Parks and Recreation Department shall be submitted to the City Engineer, Traffic Engineer and City Planner for their recommendations.

15.20.090 Maintenance Responsibility of Property Owner.

An owner of property adjoining a street right-of-way is responsible for maintaining all trees and other vegetation planted between the edge of the pavement nearest said property and the right of way line separating the property

from the street, except those trees to be maintained by the Director pursuant to section 15.20.050. This maintenance obligation shall include keeping such area free from weeds or any obstructions inimical to public safety and or contrary to the Master Street Tree Plan. The placing of tar paper, plastic or other material over the ground, or the use of materials or chemicals intended to permanently sterilize the soil in these areas, is prohibited.

Nothing in this chapter shall be deemed to relieve the owner of any property from the duty to keep the property, including any adjacent sidewalks and parkway strip in front thereof, in a safe condition and so as not to be hazardous to public travel. For purposes hereof, "owner" shall include any occupant of property.

15.20.100 Abatement of Dangerous Conditions - Authority of Director.

The Director may remove a limb from any tree, regardless of the location of such tree, if in the Director's opinion such removal is necessary to maintain the safety of the public right of way. In the event such tree is on private property, the Director shall notify the property owner of the intent to remove a limb by written notice at least ten (10) days prior to such removal and, where possible, obtain the owner's consent for entry upon the property, except in the case of manifest public danger and immediate necessity.

**15.20.110 Permit Required for Planting, Maintaining, or Removing any Tree
Growing Within a Street Right-of-Way or Public Area.**

A. APPLICATION. Whenever a ~~property owner or occupant~~ City resident or a resident's agent desires to plant, prune, trim, perform maintenance on, or remove any tree planted in a parkway strip, tree well, public area or street right of way, an ~~application shall be filed with the Parks and Recreation Department for a permit for such actions.~~ application shall be filed with the Parks and Recreation Department on forms provided for such purpose. The application shall show clearly by diagram, plot plan or photograph, the location and identity of the tree or trees sought to be planted, maintained or removed, the name and address of the resident, and such other information as indicated on the form provided.

B. PLANTING. When an application proposes the planting of a tree in a parkway strip, tree well, public area or street right of way, the Director shall consider whether the proposed planting conforms to the Master Street Tree Plan. The Director may designate the species, kind, number, spacing, and method of planting of such trees and may require the inclusion of root inhibiting planters as necessary to conform to the Master Street Tree Plan. The Director may approve, conditionally approve, or deny the application. If the application does not conform to the Master Street Tree Plan or the applicant does not agree to the Director's conditions of approval, the Director shall deny the application.

C. MAINTENANCE. When an application is submitted for maintenance of a tree planted in a parkway strip, tree well, public area or street right of way, the

Director shall consider whether the proposed maintenance will benefit the state of the urban forest and may approve, conditionally approve, or deny the application on the basis of that consideration in the sole discretion of the Director.

D. REMOVAL. When an application is submitted for the removal a tree planted in a parkway strip, tree well, public area or street right of way, the application shall be processed in accordance with this Subsection D.

1. Notice. Any tree for which a removal permit has been requested must be posted with notice of the permit request by the Parks and Recreation Department for at least ten (10) days prior to issuing a permit for removal.

2. Administrative Review. The application shall first be reviewed by the Director to consider whether the removal would benefit the state of the urban forest considering the factors specified in paragraphs 3 and 4 below. If the Director finds that the removal is either: (i) beneficial to the state of the urban forest, or (ii) imperative for public safety, the Director may issue the permit. If the Director finds that the removal will not benefit the state of the urban forest and is not imperative for safety, the Director may deny the application. The Director may also refer the application to the Street Tree Advisory Committee for further review consistent with this Section. Except in cases of where the Director finds that removal is necessary for public safety, the applicant or any interested person may request review of the application by the Street Tree Advisory Committee and the Board of Park Commissioners as provided in this Section.

3. Street Tree Advisory Committee. If the application is referred to the Street Tree Advisory Committee by the Director or at the request of the applicant

or any interested person, the application shall be presented to the Street Tree Advisory Committee at the next available meeting of the Committee. The Street Tree Advisory Committee shall consider the application and make a recommendation to the Board of Park Commissioners to approve, conditionally approve, or deny the application. When making its recommendation, the Street Tree Advisory Committee shall consider the following factors:

- a. Whether such tree is designated as an historic or specimen tree;
- b. Whether the tree species and placement conforms to the “Master Street Tree Plan;”
- c. The condition and structure of the tree and the potential for proper tree growth and development of the tree canopy;
- d. The number and location of adjacent trees on City property and the possibility of maintaining desirable tree density in the area through additional planting on City property; and
- e. Any beneficial effects upon adjacent trees to be expected from the proposed removal.

4. Board of Park Commissioners. Following the decision of the Street Tree Advisory Committee, the application shall be presented to the Board of Park Commissioners at the next available meeting of the Commission. After receiving the recommendation of the Street Tree Advisory Committee and a recommendation from the Director, the Board of Park Commissioners shall approve, conditionally approve, or deny the application. When making its decision, the Board of Park Commissioners shall consider the following factors:

- a. Whether such tree is designated as an historic or specimen tree;
- b. Whether the tree species and placement conforms to the "Master Street Tree Plan;"
- c. The condition and structure of the tree and the potential for proper tree growth and development of the tree canopy;
- d. The number and location of adjacent trees on City property and the possibility of maintaining desirable tree density in the area through additional planting on City property; and
- e. Any beneficial effects upon adjacent trees to be expected from the proposed removal.

~~If the Director finds that such maintenance is to the advantage of the tree, or that removal is imperative due to safety considerations, then a permit may be issued. The Director may waive the permit requirement for minor pruning activities such as the removal of palm fronds.~~

~~—B. All costs incurred in maintaining or removing a tree as permitted by the Director shall be borne by the permittee. Where a tree is removed under permit, the Director may require a replacement tree to be planted, and all costs related to the replacement tree shall be borne by the permittee.~~

15.20.120 Permit for Maintenance or Removal - Time Limit.

Any tree for which a removal permit has been requested must be posted with notice of the permit request by the Parks and Recreation Department for at least

ten (10) days prior to issuing a permit for removal. Any work authorized by a permit shall be done within sixty (60) days of issuance thereof, under the general supervision of the Director, and in accordance with rules established by the

Director. A permit shall be void after the expiration of the sixty day period. All costs incurred in maintaining or removing a tree as permitted pursuant to this Chapter 15.20 shall be borne by the permittee. Where a tree is removed under permit, the Director or Board of Park Commissioners may require a replacement tree to be planted, and all costs related to the replacement tree shall be borne by the permittee.

~~15.20.130 Liability Insurance Required for Tree Removal~~

Businesses Conditions of Maintenance or Removal.

Any person, firm or corporation ~~engaged in the business of pruning or removing trees and which engages in such activity as to~~ who receives a permit to prune or remove an official or parkway trees shall comply with the following conditions:

A. ~~e~~ Carry public liability and property damage insurance in an amount to be determined by the City Council and maintain a current certificate of such insurance ~~shall be~~ on file with the City Clerk.

B. Conduct all pruning activities in compliance with the current pruning standards published by the American National Standards Institute (ANSI A300) and the companion best management practices published by the International

Society of Aborigiculture.

C. —The Director may require the posting of Post a performance bond in the amount equal to the cost of a proposed job, if required by the Director.

15.20.140 Interference with Work Prohibited.

No person shall interfere, or cause any person to interfere with, any work being done under provisions of this chapter by any employee of the City or any person or firm doing work for the City on bid, hire or assignment.

15.20.150 Injuring Trees - Unlawful Acts.

It is unlawful for any person to injure or destroy any tree growing within a City street right-of-way or in public areas by any means, including, but not limited to the following:

- A. Constructing a concrete, asphalt, brick or gravel sidewalk or otherwise filling up the ground area around any tree so as to substantially shut off air, light or water from its roots;
- B. Piling building equipment, material or any other substance around any tree so as to cause injury;
- C. Pouring any deleterious matter on or around any tree or on the surrounding ground, lawn or sidewalk;
- D. Posting any sign, poster, notice or otherwise on any tree, tree stake or

guard, or fastening any guy wire, cable, rope, nails, screws or other device to any tree, tree stake or guard without having first obtained a permit from the Director;

E. Causing any wire charged with electricity to come in contact with any tree without having first obtained a permit from the Director;

F. Causing any fire or burning near or around any tree.

15.20.160 Appeals to Park Commission.

Any ~~resident of the City~~applicant or interested person may appeal a decision of the Director regarding a permit required for the planting, or maintaining ~~or removal of~~ a tree in a street right-of-way or public area by filing a written notice thereof with the Parks and Recreation Department within ten days after such decision is made. Implementation of the decision shall be stayed during the pendency of the appeal. The notice shall clearly specify the reasons for the appeal. The appeal shall be placed on the agenda of the Board of Park Commissioners at its next ~~regularly scheduled~~available meeting. The Board of Park Commissioners shall make a ruling based on the evidence presented, and may sustain, modify or reverse the decision of the Director.

15.20.170 Appeals to City Council.

~~—An appeal to the City Council from any ruling of the Board of Park Commissioners may be made pursuant to the provisions of Section 1.30.050 of~~

~~this Code.~~ Any action of the Board of Park Commissioners made pursuant to this Chapter 15.20 may be appealed to the City Council pursuant to the provisions of Section 1.30.050 of this Code.

15.20.180 Designation of "Specimen" and "Historic" Trees.

Any recommendation by the Board of Park Commissioners or the Historic Landmarks Commission to City Council for the designation of a "Specimen" or "Historic" tree shall be preceded by two public hearings, which shall be at least 30 days apart.

SECTION TWO. Chapter 15.24 of Title 15 of the Santa Barbara Municipal Code is amended to read as follows:

15.24.001 Use of American National Standards Institute Pruning Standards.

The City recommends the use of the pruning standards published by the American National Standards Institute [ANSI A300 (Part 1)] and the companion best management practices published by the International Society of Arboriculture. The City encourages residents to utilize and follow the current standards and best management practices in the management of their trees.

15.24.010 Definitions.

For the purpose of this Chapter, certain terms and words are hereby defined as

follows:

A. TREE. A usually tall, woody plant, distinguished from a shrub by having comparatively greater height and, characteristically, a single trunk rather than several stems;

B. PALM TREE. Any tree from the Palmae plant family;

C. SPECIMEN TREE. Any tree which has been found by the Board of Park Commissioners to be of high value because of its type and/or age and which has been designated by resolution of the City Council as a "specimen tree";

D. HISTORIC TREE. A tree which has been found by the Board of Park Commissioners, the Historic Landmarks Commission or the City Council to be a tree of notable historic interest and has been designated by resolution of the City Council as an "historic tree";

~~E. CUT DOWN OR OTHERWISE DESTROY. To cut a tree down or to prune a tree in such a way that its natural character is significantly altered or its overall size is reduced by more than one-third.~~

E. DIRECTOR. The person having control and management of the Parks and Recreation Department of the City or the Director's designated representative.

F. REMOVE A TREE. To cut a tree down or to otherwise remove a tree from its location by any means.

G. SIGNIFICANTLY ALTER A TREE. To prune a tree in such a way that either (i) its natural character is significantly altered, or (ii) the height and/or

spread of the tree crown is reduced by more than one-quarter within any twelve month period.

H. TREE CROWN. The leaves and branches of a tree measured from the lowest branch on the trunk to the top of the tree.

15.24.020 Prohibition.

~~It~~Except as provided in Sections 15.24.030 and 15.24.035, it is unlawful to ~~cut down or otherwise destroy~~remove or significantly alter or to authorize or allow the ~~destruction or cutting down~~removal or significant alteration of any tree without a permit if the tree is either:

A.—~~S(i)~~situated in the front setback of any lot or situated in the area of any lot required to be landscaped pursuant to Section 28.90.050 of this Code,or ~~except as provided in Sections 15.24.030 and 15.24.035 of this chapter, without the express permission of the Board of Park Commissioners, or City Council, on appeal;~~

~~—B. That (ii) has been~~ designated as an historic or specimen tree by the City Council ~~as defined herein, anywhere it may occur on a lot, parcel or building site.~~
For purposes of this Section 15.24.020, a tree is situated in the front setback of a lot if more than 50% of the tree trunk is situated within the front setback.

15.24.030 Lawful Removal of Trees Without a PermitApplication.

~~Trees coming within the following exceptions may be removed lawfully without application to or permission from the Board of Park Commissioners or City Council~~ A tree that is subject to the prohibition specified in Section 15.24.020 may be lawfully removed without a permit if the tree satisfies any one of the following definitions:

A. ~~Trees whose~~ The tree's main trunk is less than four inches (4") in diameter at a point ~~twelve inches (12") above the ground or palm trees with a trunk less than three feet (3') in height~~ four feet six inches (4'6") above the highest natural grade adjacent to the trunk;

B. ~~Diseased trees whose~~ The tree is diseased and the tree's condition is a source of present danger to healthy trees in the immediate vicinity; provided ~~eding~~ a certificate attesting such condition has been filed with the Parks and Recreation Director by a member of the American Society of Consulting Arborists, an arborist certified by the International Society of Arboriculture, or by an authorized employee of the City Parks and Recreation Department;

C. ~~Trees~~ The tree is so weakened by age, disease, storm, fire, or any injury so as to cause imminent danger to persons or property, provided ~~eding~~ prior written notice of such condition has been given to the Parks and Recreation Director at least forty-eight (48) hours prior to the removal of the tree or shorter period if approved by the Parks and Recreation Director;

D. ~~Dead trees~~ The tree is dead, provided prior written notice of such condition has been given to the Parks and Recreation Director at least forty-eight (48) hours prior to the removal of the tree or shorter period if approved by the Parks

and Recreation Director; or

E. The Fire Department has ordered the tree removed in order to maintain required defensible space on the lot or to comply with the City's Wildland Fire Plan.

15.24.035 Lawful ~~Reduction~~ Significant Alteration of Trees Without Application.

A tree that is subject to the prohibition specified in Section 15.24.020 may be significantly altered without a permit if the tree satisfies either of the following definitions:

A. Any~~The~~ tree posing a potential danger to persons or property due to age, disease, storm, fire, or other injury; provided: ~~may be lawfully pruned in such a way that the natural character of the tree is significantly altered or the overall size of the tree is reduced by more than one-third without application to or permission from the Board of Park Commissioners or City Council if:~~

A1. A written report prepared by a member of the American Society of Consulting Arborists or an arborist certified by the International Society of Arboriculture specifying the reason(s) for the reduction and the extent of the proposed work is filed with the Parks and Recreation Director; and

2.B. An authorized employee of the City Parks and Recreation Department assesses the condition of the tree and approves the proposed work as comporting with sound arboricultural practices as specified in the American

National Standards Institute tree pruning standards.

B. The City Fire Department has ordered the pruning of the tree in order to maintain required defensible space or to comply with the City's Wildland Fire Plan; provided, the scope of the pruning allowed pursuant to this section is limited to extent of the pruning specified in the Fire Department order that is filed with the Parks and Recreation Director.

15.24.040 Application to Remove a Tree.

~~An application for authority to remove a tree when permission is required shall be~~
When a permit is required for the removal of a tree pursuant to this Chapter 15.24, the application for such permit shall be processed as follows:

A. APPLICATION. An application shall be filed with the Parks and Recreation Department on forms provided for such purpose. The application shall show clearly by diagram, plot plan or photograph, the location and identity of the tree or trees sought to be removed, the name and address of the owner and such other information as indicated on the form provided.

B. STREET TREE ADVISORY COMMITTEE. The application shall be presented to the Street Tree Advisory Committee at the first available meeting of the Committee following receipt of the application. The Street Tree Advisory Committee may receive a report from the Director regarding the application and the Committee shall make a recommendation to the Board of Park

Commissioners to approve, conditionally approve, or deny the application based on the considerations specified in Section 15.24.060.

C. BOARD OF PARK COMMISSIONERS. Following the decision of the Street Tree Advisory Committee, the application shall be presented to the Board of Park Commissioners at the first available meeting of the Commission. After receiving the recommendation of the Street Tree Advisory Committee and a report from the Director, the Board of Park Commissioners shall approve, conditionally approve, or deny the application. When making its decision, the Board of Park Commissioners shall consider the factors listed in Section 15.24.060 and, before approving or conditionally approving the application, the Commission shall make one or more of the findings specified in Section 15.24.070.

15.24.050 Board of Park Commissioners Action.

The Board of Park Commissioners shall vote upon the application within sixty (60) days after it is filed. A majority vote of the members present shall be required to approve a tree removal. Failure of the Board of Park Commissioners to vote upon the application within sixty (60) days shall be deemed approval thereof. The Parks and Recreation Department shall notify the applicant in writing of the decision of the Board of Park Commissioners.

15.24.060 Considerations for Removal.

The following considerations shall be taken into account by the Board of Park Commissioners in acting upon a tree removal request made pursuant to this chapter:

- A. Whether such tree is designated as an historic or specimen tree;
- B. The potential size of the tree in relation to the size of the lot or building site and the size of the proposed or existing improvements;
- C. The number and size of other trees which would remain upon the building site after the requested removal;
- D. The number and location of adjacent trees on City property and the possibility of maintaining desirable tree density in the area through additional planting on City property;
- E. Any beneficial effects upon adjacent trees to be expected from the proposed removal;
- F. Whether the tree sought to be removed was planted by or with the permission of the applicant or the applicant's co-tenant at the time such tree was planted.
- G. The condition and structure of the tree and the potential for proper tree growth and development of the tree canopy.

15.24.070 Findings for Removal.

~~As a prerequisite to granting a tree removal request, the Board of Park Commissioners may impose conditions and~~ Before approving or conditionally approving an application for the removal of a tree pursuant to this Chapter 15.24, the Board of Park Commissioners shall make one (1) or more of the following findings:

- A. That principles of good forest management will best be served by the proposed removal;
- B. That a reasonable and practical development of the property on which the tree is located requires removal of the tree or trees whose removal is sought;
- C. That the character of the immediate neighborhood with respect to forestation will not be materially affected by the proposed removal;
- D. That topography of the building site renders removal desirable;
- E. That regard for the safety of persons or property dictates the removal.

15.24.080 Appeals to City Council.

~~An appeal of the action of the Board of Park Commissioners may be filed by the applicant or any interested person pursuant to the provisions of Section 1.30.050 of this Code.~~ Any action of the Board of Park Commissioners made pursuant to this Chapter 15.24 may be appealed to the City Council pursuant to the provisions of Section 1.30.050 of this Code.



City of Santa Barbara
Parks and Recreation Department

Memorandum

DATE: March 5, 2009

TO: Street Tree Advisory Committee

FROM: Tim Downey, Urban Forest Superintendent
Jill E. Zachary, Assistant Parks and Recreation Director

SUBJECT: Tree Preservation Policies and Enforcement Procedures

RECOMMENDATION: That the Street Tree Advisory Committee (STAC):

1. Provide recommendations to the Ordinance Committee of the Santa Barbara City Council regarding the use of American National Standard Institute (ANSI) Standards and Best Management Practices in the City's regulation of trees; and
2. Review and comment on the proposed changes to Chapter 15.20 and Chapter 15.24 related to tree preservation policies and enforcement procedures, including formalizing the existing role of the STAC.

Introduction

The purpose of this staff report is to initiate a discussion with the STAC regarding the use of ANSI A300 Standards and Best Management Practices (BMPs) in the City's regulation of trees, and to review the preliminary proposed changes to Chapter 15.20 and Chapter 15.24 related to the protection of trees, including formalizing the role of the STAC.

City staff presented the tree preservation and landscape plan maintenance policy recommendations to the City Council on December 9, 2008. The Council Agenda Report with those recommendations is included as Attachment 1 to this staff report. At that time, the City Council took action to refer the recommendations to the Ordinance Committee, and requested Street Tree Advisory Committee recommendations regarding the use of the ANSI standards and best management practices. Some members of the public, including some STAC members, have recommended that the City adopt the ANSI A300 pruning standards and Best Management Practices as the means of establishing tree violations under the Municipal Code. Letters to the Park and Recreation Commission and the City Council are included as Attachment 2.

ANSI A300 Standard and Best Management Practices

The ANSI A300 Standard for tree care operations are intended for use as guidelines for federal, state, municipal, and private authorities including property owners, property managers, and utilities in drafting maintenance specifications. The ANSI A300 standard includes definitions of pruning techniques as well as pruning tools, tree structure, and tree professional categories. Within the forward of the document it states that users “first interpret the wording”. Then “apply their knowledge of the growth habits of certain plant species in a given environment. In this manner, the user develops their specifications for plant maintenance.” This illustrates the intended use of the documents. Included as Attachment 3 to this staff report, the Forestry Program currently uses these standards when contract specifications are prepared for tree pruning work, or as mitigation measures when appropriate for tree trimming violations. Forestry staff also uses these standards as a guideline for City tree pruning practices.

The Best Management Practices document is published to help interpret and implement the ANSI A300 standard. Included as Attachment 4 to this staff report, it defines several types of pruning techniques and describes where to make cuts related to the anatomical structure of the tree. The purpose of the BMP document is to establish a common description of preferred pruning styles and methods.

Santa Barbara Municipal Code

Chapter 15.20, Tree Planting and Maintenance, regulates the management and removal of trees located in City rights of way and public spaces. Chapter 15.24, Preservation of Trees, regulates the management and removal of trees on private property located in the front setback or, where required, in parking lots.

Section 15.24.020 of Chapter 15.24 prohibits the cutting down or otherwise destroying a tree without a permit. As the Municipal Code is currently written, the term “cut down or otherwise destroy” is defined as cutting a tree down or pruning a tree in such a way that its natural character is significantly altered or its overall size is reduced by more than one-third.

The requirements and prohibitions established under Section 15.24.020 and Section 15.20.110 (permits required for planting, maintaining or removing a Street Tree) of the Municipal Code allows the City to enforce violations. When the City investigates a suspected violation that involves tree pruning, the primary consideration is whether the tree’s natural character has been altered. Frequently, but not always, pruning methods that alter the natural character of a tree also remove more than one-third and the violation is readily apparent. Most of the pruning violations involve pruning techniques that alter the natural character of the tree such as topping or pollarding. In some cases, excessive thinning can also alter the natural character of the tree. There are occasions

when a suspected pruning violation requires City staff to thoroughly evaluate the tree to determine whether or not more than one-third has been removed. To do this, staff measures the size of the cuts, compares those cuts to the size of the branch, and extrapolates the cuts to an average length of growth that would have been removed based on the knowledge of how that particular species grows. In some cases, the City has determined that the natural character of the tree was altered, even though the overall size of the tree was not reduced by more than one-third.

Use of ¼ Foliage Reduction Standard and BMPs as Guidelines or Enforcement Standards

Staff supports the use of the one-quarter foliage reduction standard as a tree pruning guideline and supports the use of the ANSI A300 Standards and Best Management Practices. However, Staff has a number of concerns about incorporating these standards and practices in Chapter 15.24 as a penal ordinance. These concerns include:

1) Difficulty of determining the amount of foliage removed after the fact: A primary concern in drafting a penal ordinance is its enforceability. While the number, location and size of limb cuts can assist in the determination of an overall size reduction, tree foliage is more variable. Without adequate documentation of the tree's condition prior to pruning, it would be difficult to prove the amount of foliage that was removed.

2) Enforcement of a guideline with a penal ordinance: The ANSI standards are written as industry guidelines that allow for individual interpretation by the person managing the tree. The BMPs are written as guides that owners and practicing arborists should strive to achieve. The ANSI standards and BMPs are not written as minimum standards that, if violated, subject a person to criminal prosecution. For these reasons, Staff does not recommend their use as the standard on which to enforce.

3) Lack of Flexibility: Another consideration is lack of flexibility for reasonable tree pruning that requires the removal of more than one-quarter of the foliage. In many cases, the goal of trimming is to slow the growth rate. The key is to reduce it to a level that slows the rate but doesn't cause the tree to respond to the pruning by producing a flush of growth. Slowing the growth maintains the beauty of the tree while reducing risk, maintenance costs and litter from the tree.

A permitting provision could extend the lawful reduction to allow for trimming beyond one-quarter based on the needs of the tree and the opinion of an independent arborist. However, additional permitting requirements may not be well received by certified arborists and would result in higher staff workload that, overall, may not be warranted.

4) Conflict with City Standards: The Best Management Practices document includes pruning techniques that the City considers unacceptable. For example, within the BMP

document pollarding is considered an acceptable practice under certain circumstances. The City considers pollarding a violation of the tree preservation ordinance since it alters the natural character of the tree.

It may be appropriate to reference the ANSI A300 Standards and BMPs in Chapter 15.20 under tree planting and maintenance. This reference could include, "tree trimming should be consistent with A300 (Part 1) and Best Management Practices Tree Pruning documents except where they conflict with the provisions of the municipal code."

Proposed Municipal Code Changes

Pending the discussion related to the ANSI A300 standard and Best Management Practices, preliminary changes to the municipal code are provided in Attachment 5. These changes include:

- Clarify definition of reduce (now termed "significant alteration")
- Extending protections beyond setback trees and parking lot trees to all trees in approved landscape plans
- Clarification of when a tree is located within the setback
- An exemption for fire safety
- Cross references for all tree and landscape municipal code (to be completed in a later draft)
- Consistent measurement standard for trees
- Formalization of the Street Tree Advisory Committee

Proposed changes to the fines associated with tree violations will be established separately by resolution of the City Council.

Staff Recommendation

Staff continues to support the use of the ANSI standards and Best Management Practices as guidelines for tree pruning techniques and to determine proper mitigation for violations when appropriate. Staff recommends the Street Tree Advisory Committee discuss these documents and provide recommendations regarding their use in the Municipal Code. These recommendations will be given to the Ordinance Committee of the Santa Barbara City Council.

- ATTACHMENTS:**
1. December 9, 2008 Council Agenda Report
 2. Letters to the Park and Recreation Commission and City Council
 3. ANSI A300 Standards (Part 1)-2001 Pruning
 4. ANSI Best Management Practices: Tree Pruning
 5. Preliminary Ordinance Revisions